Issue 104
P.S
1961 Series
THE PREVENTIVE MAINTENANCE MONTHLY
HOW TO WASH YOUR EQUIPMENT AND SURVIVE
WILL EISNER

QUOTE...

"... The combat readiness of troops bears a distinct relationship to the combat readiness of the equipment in which and with which they fight. The ability to maintain arms and equipment may spell the difference between defeat and survival."

—FM 38-1 (August 1958)

When it comes to the reason that maintenance is important, it could hardly be said better—

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Sgt Half-Mast,
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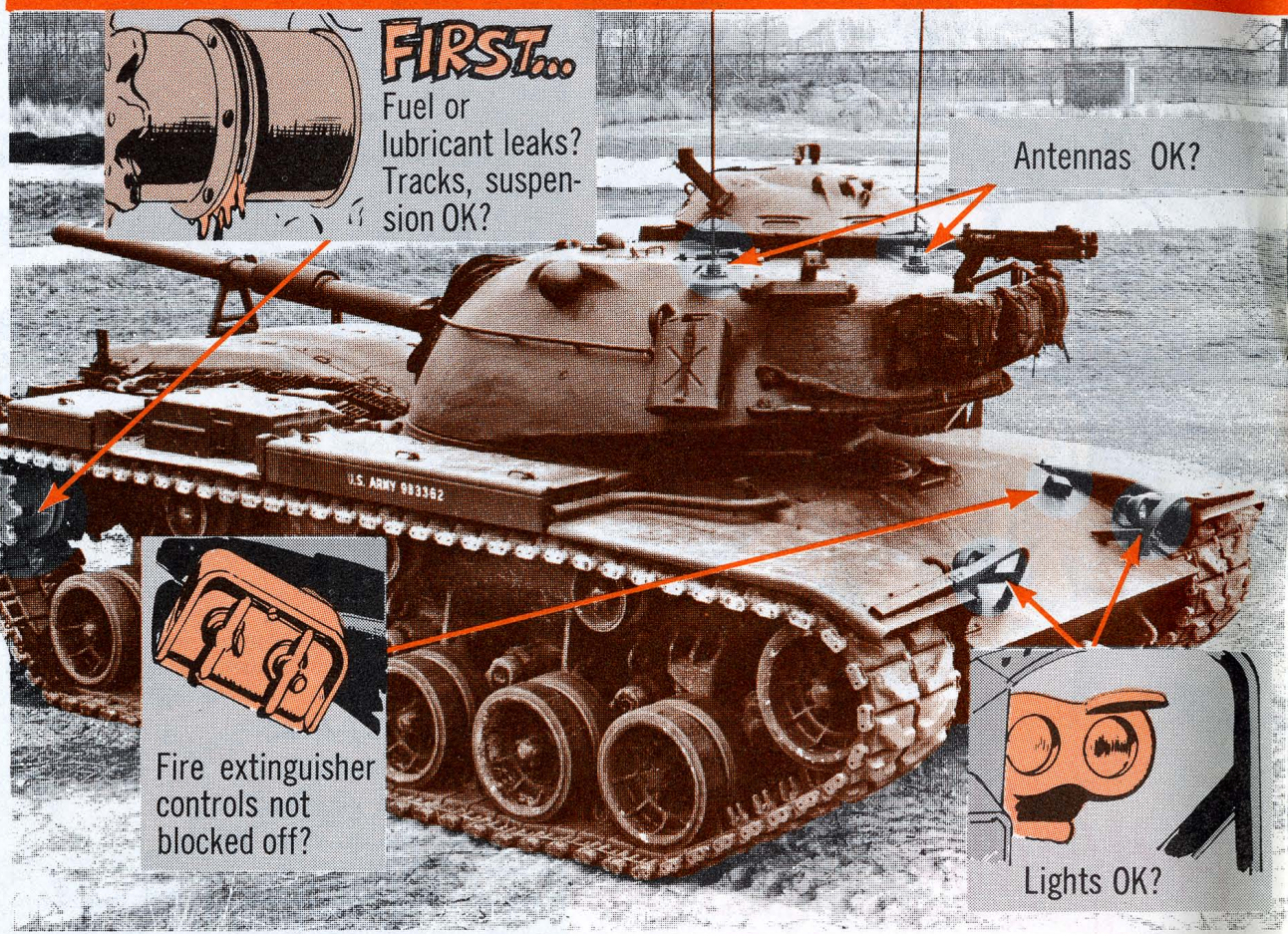
Your new M60 medium tank with 105-mm gun is a rugged chunk of hardware. It should give you many miles of easy-going operation if you take care of it like the TM's say.

Until you get TM 9-2350-215-10 on the M60, the dope on these pages will help you and the M60 get acquainted.

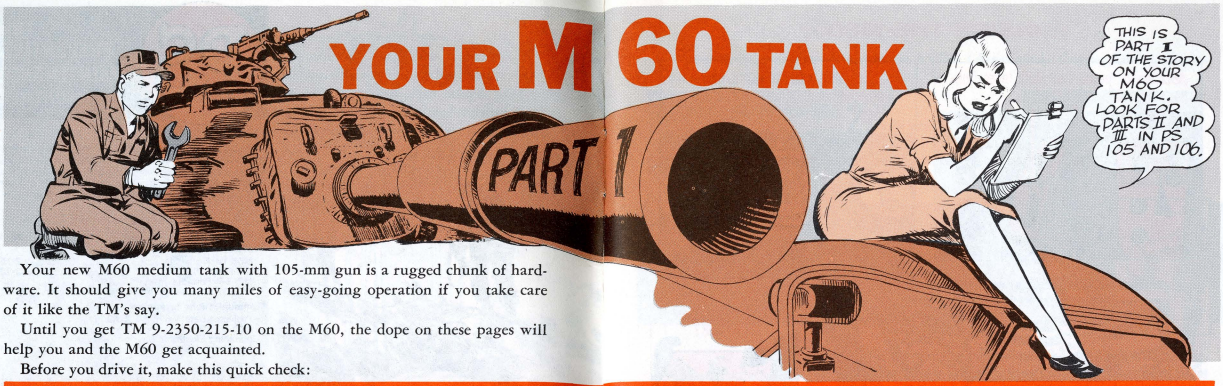
Before you drive it, make this quick check:

OUTSIDE



YOUR M 60 TANK

PART 1



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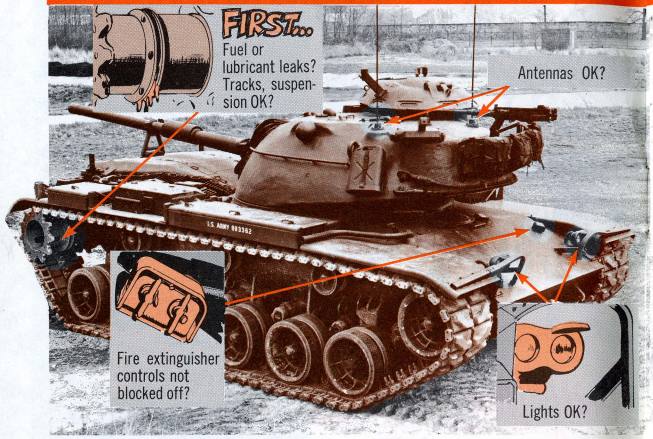
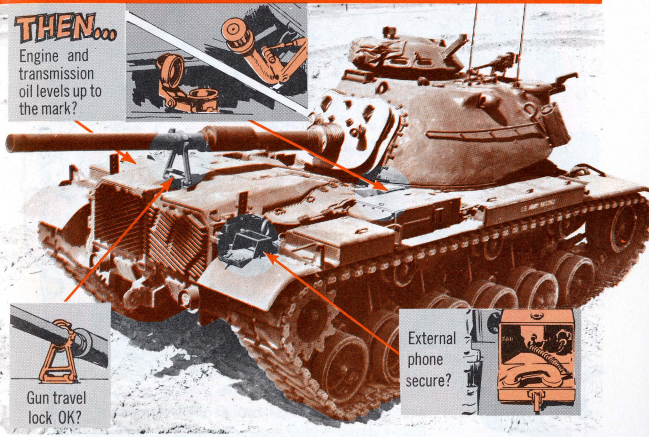
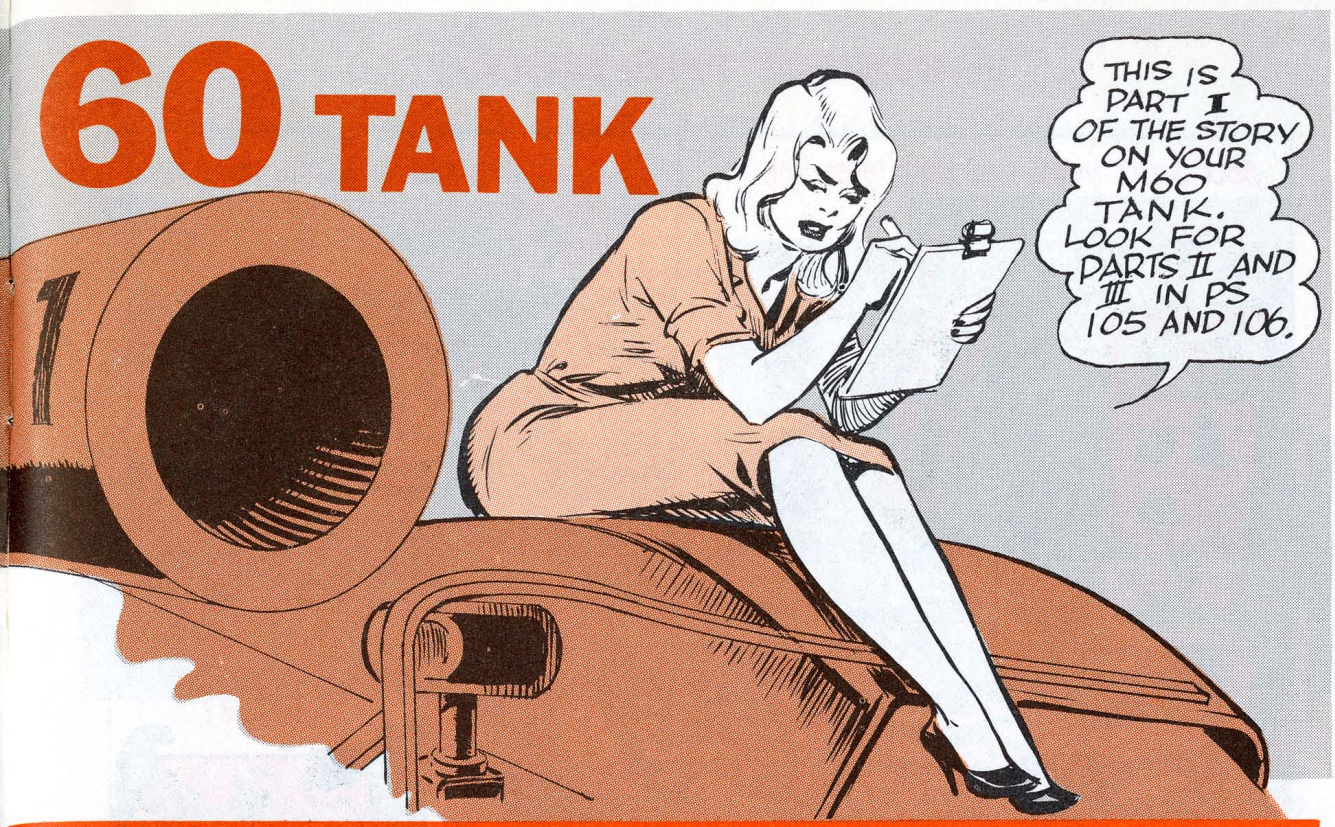




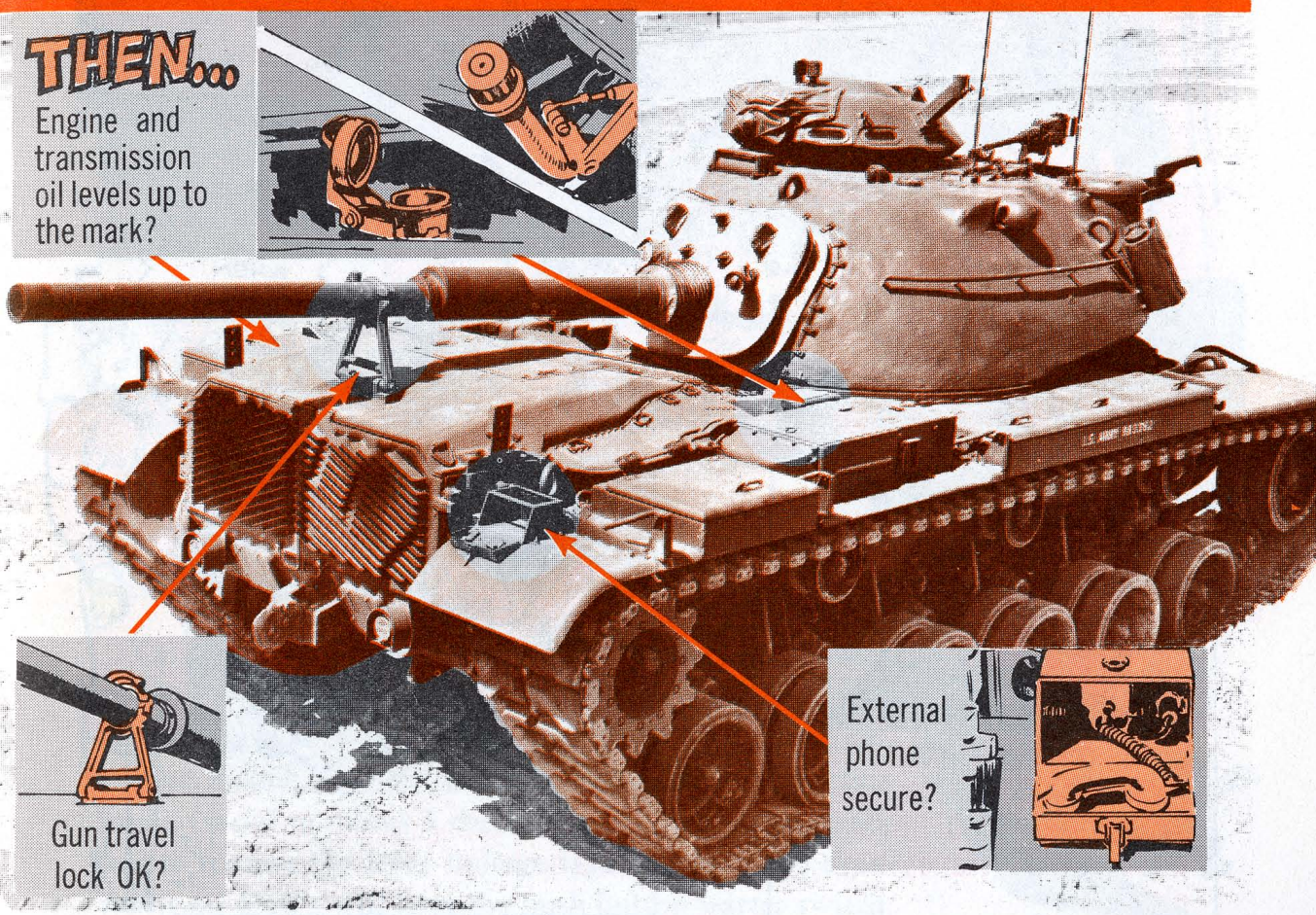
60 TANK



THE TANK:

THEN...

Engine and transmission oil levels up to the mark?



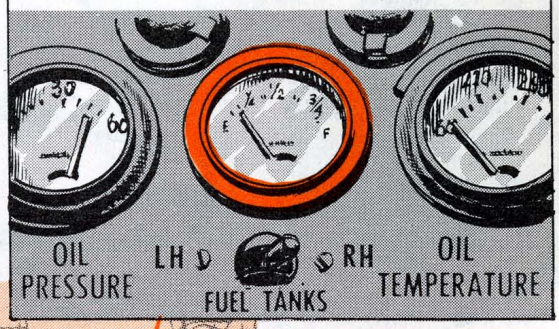
Gun travel lock OK?

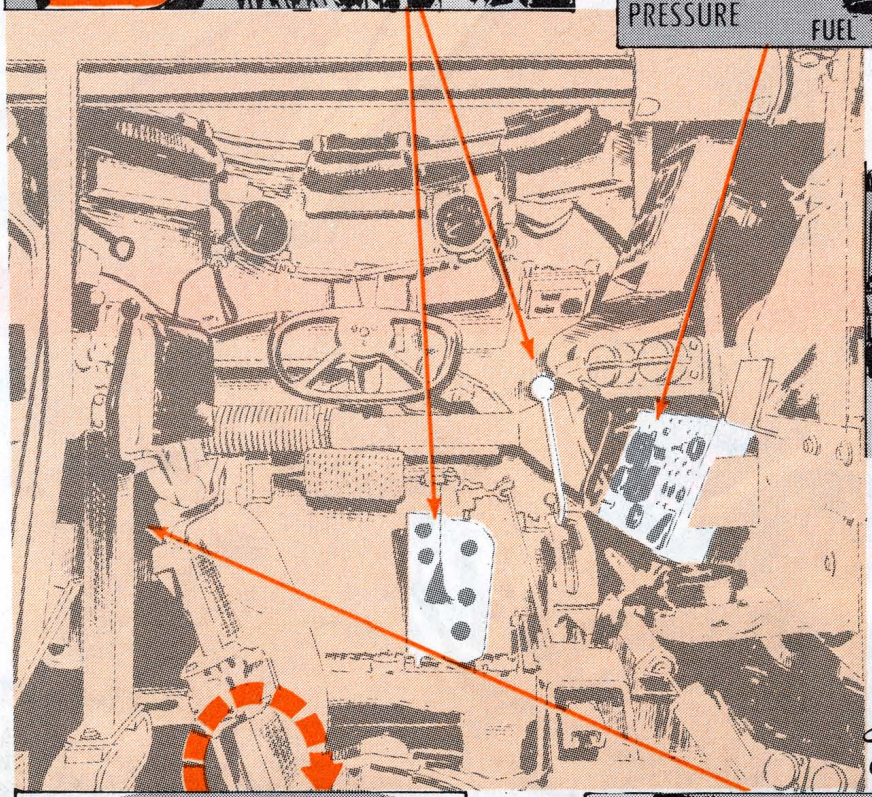
External phone secure?

INSIDE THE M60:

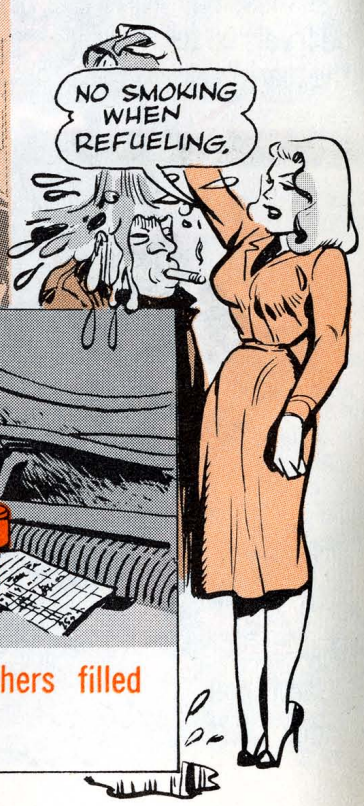
Accelerator pedal and shift lever linkages operating smoothly?

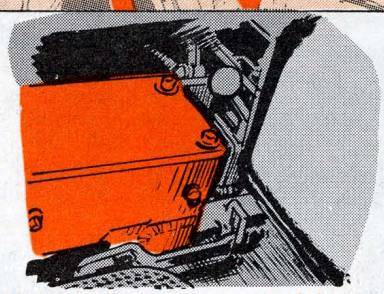
1. Fuel in the tanks? Control panel switches and indicator lights workings?



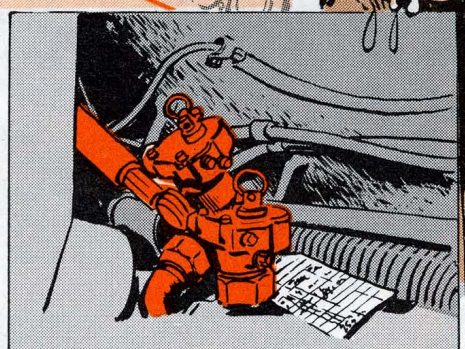


Ventilating blower OK?





2. Hull drain valve control levers in CLOSED position? Drains are left OPEN only when vehicle stands overnight.

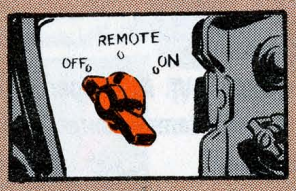


3. Fire extinguishers filled and seals OK?

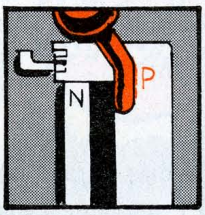
STARTING THE M60:

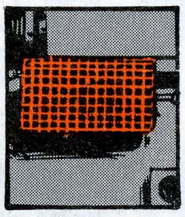
You start the engine—Continental AVDS (Air-cooled, V-type, Diesel, Supercharged)-1790-2—like this . . .

1. Turn the radio switch to OFF.

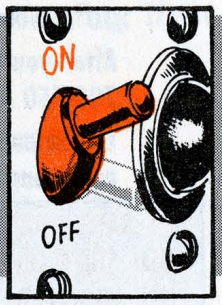


2. Make sure your shift lever is in the P (PARK) position and the brakes are set.

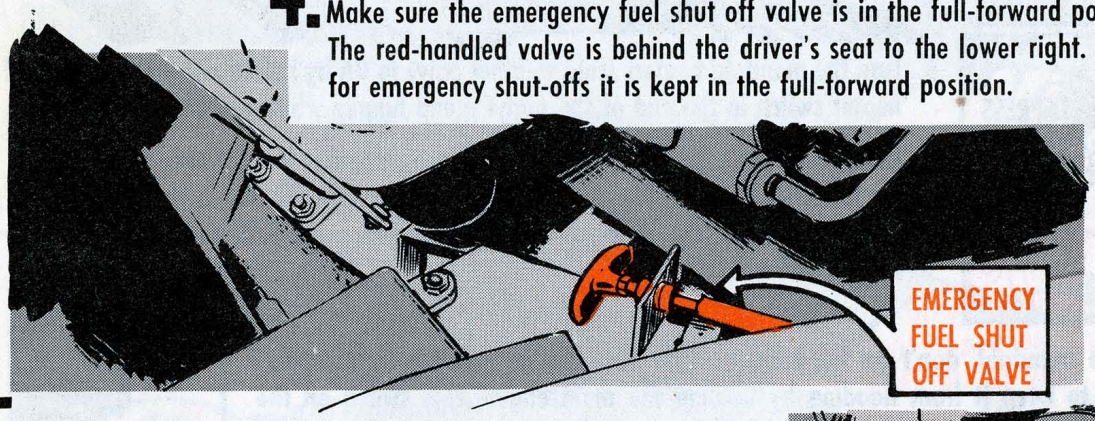




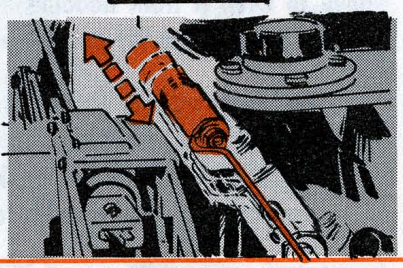
3. Flip master switch to ON. The indicator light next to the switch and the engine and transmission low oil pressure red warning light above the tachometer will come on. In fact, if they don't, have your organization mechanic check the circuits.



4. Make sure the emergency fuel shut off valve is in the full-forward position. The red-handled valve is behind the driver's seat to the lower right. Except for emergency shut-offs it is kept in the full-forward position.



5. Get the air out of the fuel lines and fuel pumps by working the purge pump handle a couple strokes. Don't worry about over-purging. You won't get over 90 PSI no matter how long you pump. This doesn't work like the primer pump on the M48's. Often you won't have to use it at all. The purge pump is at the driver's right in front of the fuel shut-off valve control.



6. Late production tanks have a starter switch on the driver's control panel. When starting this model, put the shift lever in P (PARK) before pushing the starter button.

On earlier production models which have not yet been modified by an MWO, lift the safety latch and move the shift lever from P (PARK) to the S (START) position.

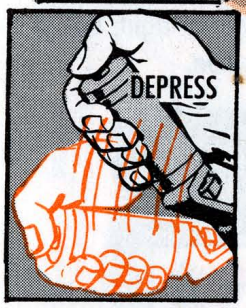
This'll kick over the engine. Those early production tanks (serial numbers 5 through 364) will all be modified to remove the lever-linkage type starter . . . so eventually all M60's will have the push button starter switch.

Don't run the starter over 30 seconds at a time. Press down on the accelerator about ⅔ to ¾ of the way while the engine is cranking. If the engine won't start, wait about two minutes and try it again. In very cold weather when the engine is stiff, wait at least five minutes for the starter to cool off before you try it again.

7. When the engine catches, run it for a while to warm up before you move out. At temperatures above 30°F a couple minutes at 1,000-1,200 RPM should do it. With temperatures below 30°F, warm up at around 1,600-1,800 RPM.

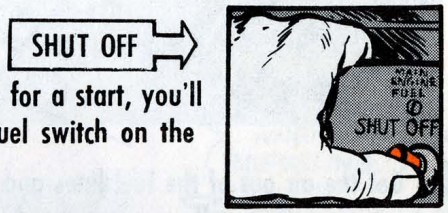
After you've got your engine warmed up, reduce your engine speed to the normal idle of 700-750 RPM.

On the early production tanks with the lever-linkage starter, ease up on the shift lever as soon as the engine catches. Move the lever back to the P (PARK) position and lower the safety catch.



8. Turn the manifold heaters (cold weather only) to ON by holding down the manifold heater switch in the end of the purge pump handle while you continue to pump.

Don't work the manifold heaters unless your engine is being cranked. The reason for this is that the fuel won't burn unless it gets the air that is pulled in by the cranking. If your manifolds get loaded with unburned fuel, you might wind up with a hydrostatic lock.

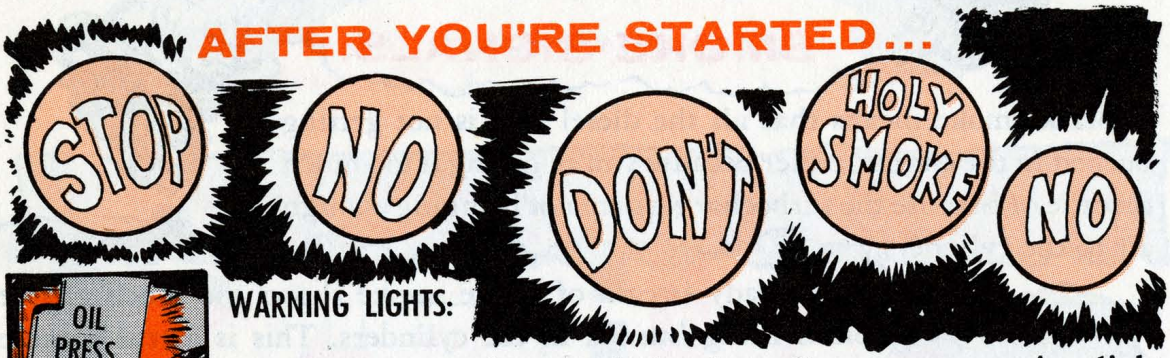


If the manifold don't get hot enough in the first five seconds for a start, you'll have to keep it from flooding by holding the main engine fuel switch on the control panel in the OFF position while you try again.

This fuel switch is spring loaded and won't stay in the OFF position by itself the way the TM's show it. You have to hold it up with one hand, while you operate the manifold heater button with the other hand and work the starter with your third hand. If you haven't got three hands, use your feet or get a buddy to help you.

9. After you have heated up your manifold (if you had to) let go of the main engine fuel switch and it will spring back into the ON position.

AFTER YOU'RE STARTED...



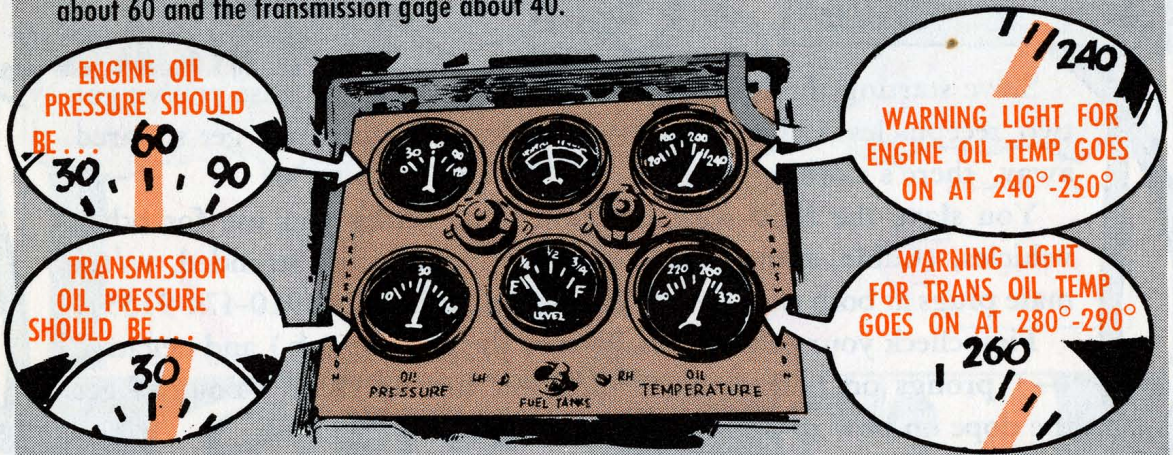
WARNING LIGHTS:

The engine and transmission low oil pressure warning light blinks on when the RPM drops below 1600.

IF THE LIGHT STAYS ON ABOVE 1600 RPM, SOMETHING PROBABLY IS WRONG.

It might be contaminated oil or oil that's too light, leaks, kinked cooler lines, or oil loss in the transmission because of bad gaskets or loose drain or inspection plugs.

Check the separate oil pressure gages on the instrument panel. The engine gage should read about 60 and the transmission gage about 40.



The high oil temperature warning light for engine and transmission will go on when engine temperature gets between 240° and 250° or when the transmission oil is around 280°-290°.

If this light comes on it usually means something is wrong. Stop your tank at once but don't turn off the engine. If the oil pressure gage shows no pressure, shut off the engine.

If it shows pressure, set the engine to run at 1,000-1,200 RPM to cool the oil and check engine compartment for leaves or trash on the coolers or anything else that might cause the overheating.

'Course, an engine and transmission can overheat from just a long, hard, pull. Other things that could do it are clogged oil cooler air passages, kinked oil cooler lines or slipping cooling-fan clutches.

SMOKE SIGNALS:

Black smoke means that all the diesel fuel is not getting burned in the engine, either because you're giving it too much throttle or because the turbochargers are not bringing enough air to the cylinders.

A steady stream of white smoke shows too much engine oil is being burned in the cylinders. This is a real trouble signal for a diesel engine. If you're getting white smoke, see if your turbochargers are leaking oil into the air that goes to the engine.

SLAVE STARTING:

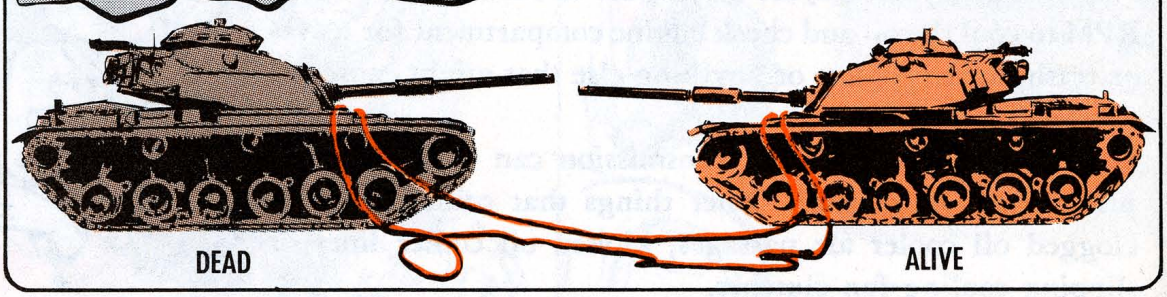
Slave starting the M60 may look a little rough because you've got two receptacles and you use two cables, but once you get squared away, there's nothing to it.

You slave the M60 with the same type cables you use for other vehicles, (Cable, extn, rubber covered, 2 conductor stranded, w/female plugs at both ends, AWG No. 1, lgn 20 ft. FSN 4910-474-9135).

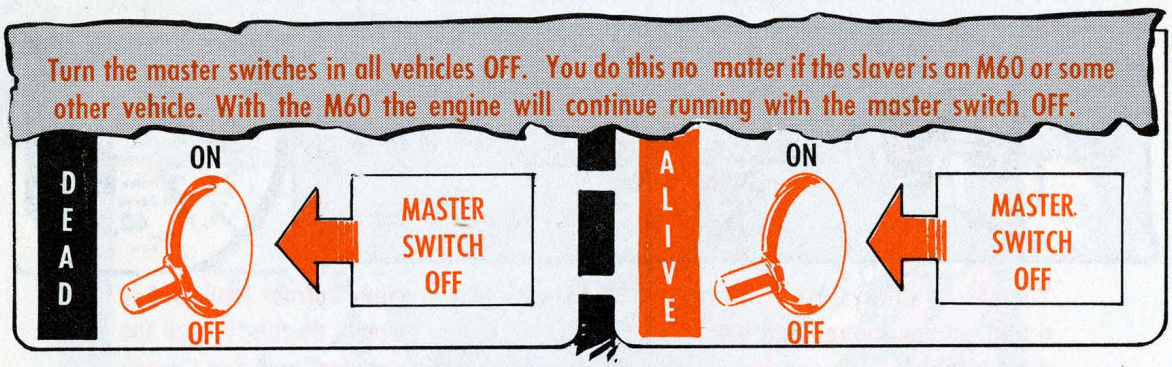
First check your cables to make sure the positive (+) and negative (—) prongs on both ends of the cable line up right. (You can get the dope on how to do this in PS 85).

After you get your cables checked, mark 'em some way so you'll know they're OK. That way you won't have to make a check every time you want to use them.

This is the way you slave on M60: Spot a live M60 (or two other vehicles with 24-volt systems, each with four batteries, near the dead M60.

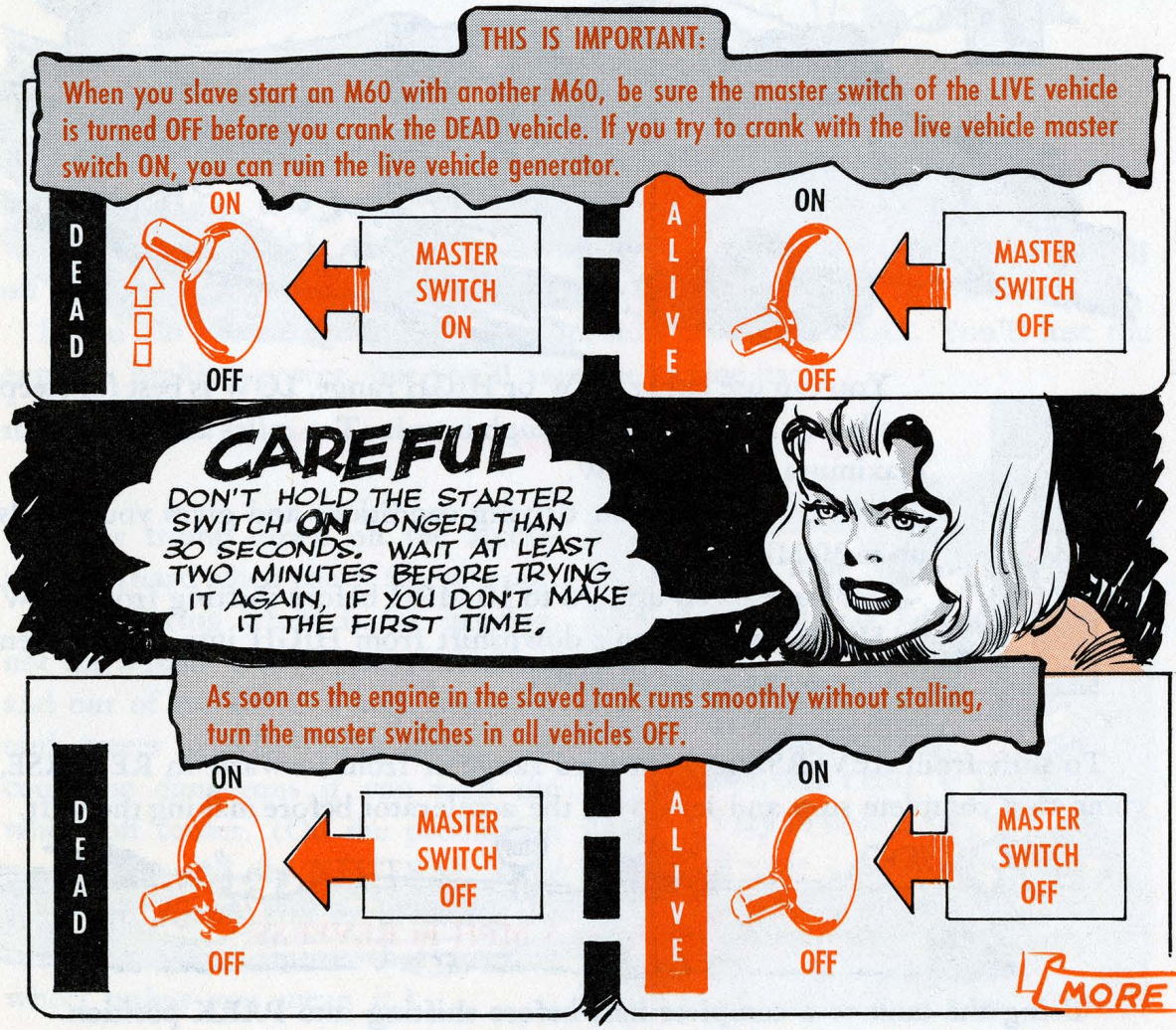


If you use an M60 as the slaving vehicle, keep the engine running, but if you use two other vehicles as slavers, turn their engines OFF.

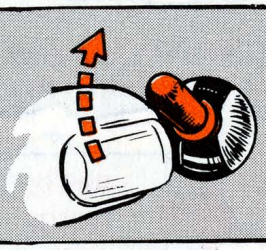


With all master switches OFF you hook up one cable at a time. It won't matter whether you plug in the dead or the live tank first, and it makes no-never-mind which socket you plug into first on the M60 you're going to slave.

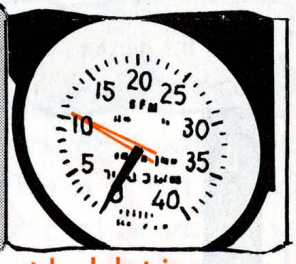
When you get both cables hooked up, start the engine in the dead M60 in the usual manner, with the master switch ON .



Pull both cables at the same time from both the slaved tank and from the M60 (or other vehicles) doing the slaving. Be a little careful with this because if one of the pins in the cable connector hits the metal around the receptacle it'll cause an arc and damage the cable.

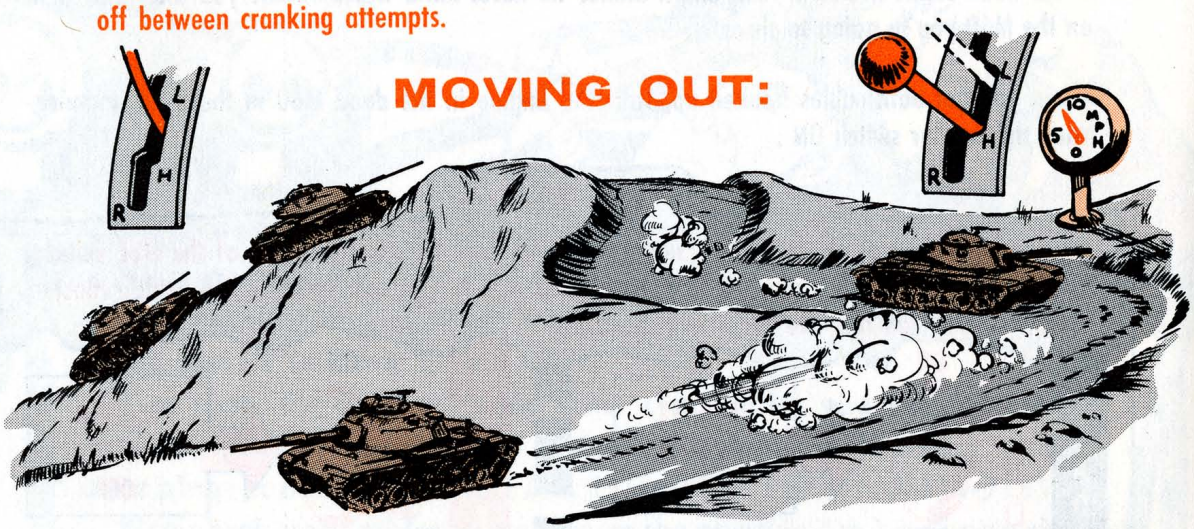


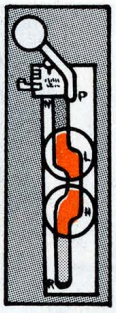
Turn the master switch ON in the slaved M60 and run the engine at 1,000 RPM to charge the batteries.



You should always use two slave cables because of the heavy current load, but in a real emergency you **can** get by with one cable. If you have to do this, charge the dead vehicle's batteries for at least 30 minutes before cranking and don't crank more than 15 seconds at a time. Also, allow at least 5 minutes for things to cool off between cranking attempts.

MOVING OUT:



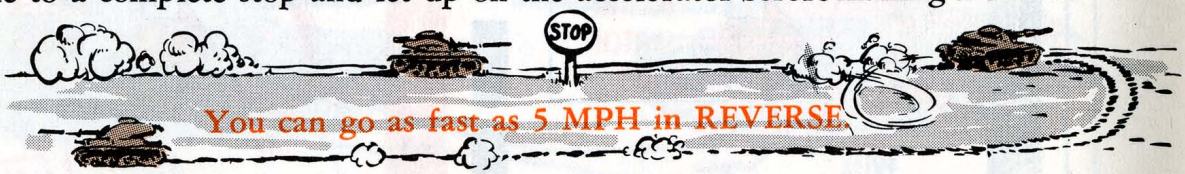


You can use either LOW or HIGH range. LOW is best for steep grades, or in very soft or rough terrain. Ten miles an hour is your maximum speed in LOW.

HIGH is for regular driving conditions and gives you speeds up to 30 MPH.

Get your speed up to 6 to 10 MPH before shifting from LOW to HIGH range. Don't downshift from HIGH into LOW when you're going over 10 MPH.

To shift from REVERSE to a forward range or from forward to REVERSE, come to a complete stop and let up on the accelerator before making the shift.



You can go as fast as 5 MPH in REVERSE.

Bring the tank to a complete halt before shifting into PARK position.

DANGER—WATCH OUT

The M60 has a compression ignition engine which has a lot of built-in advantages and one built-in danger. The danger is that the transmission will drive the engine instead of the other way around. This can happen when you stall going up a steep hill and then begin to coast backwards. When this happens, the transmission will drive the engine backwards. The turbocharger then spins in reverse and gets damaged. Hot air pours out of the cleaners, ruining them. The turret fills with smoke...

This can also happen when you're going forward down a steep slope in REVERSE range.

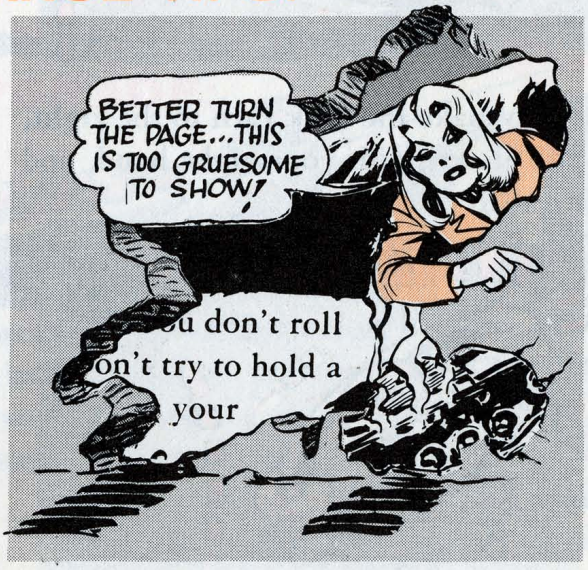
If your engine starts running backward on you, brake the tank to a stop, shut off the engine, and after waiting a couple seconds, restart it again.

If you can't brake the engine to a stop, shift into NEUTRAL. You'll lose the engine's braking power, but you'll save the engine itself.

PERFORMANCE TIPS:

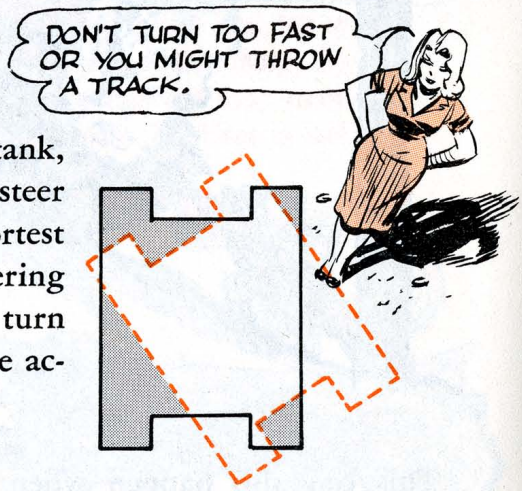
Never tromp down on the accelerator too hard when you're starting out.

The steering wheel is for steering, not for a hand rest to pull yourself in and out of the driver's seat. Since the tank steers in NEUTRAL range, this could be dangerous if you turn the wheel off center. (On the production models there's no NEUTRAL steer switch to protect you by breaking the circuit, so don't move that steering wheel unless you mean it.)



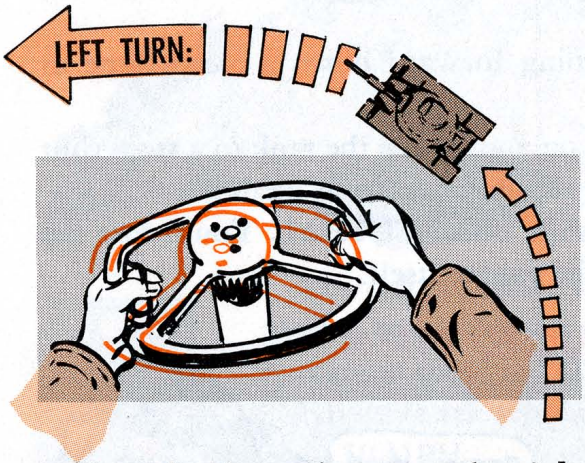
STEERING:

The M60 steering is real sensitive, and you've got to be watchful at all times, particularly on hard pavement. Practice braking a few times at different speeds to get the feel of your tank. You can steer in all ranges, including NEUTRAL.



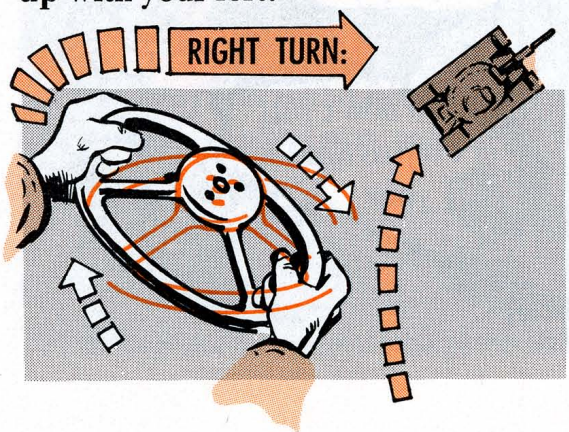
NEUTRAL STEER:

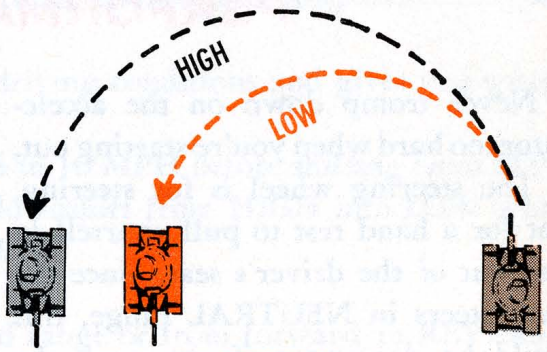
This gives you a pivot turn. It's hard on the tank, so don't do it unless you have to. NEUTRAL steer gives you the most change of direction in the shortest amount of time and space. You turn the steering wheel to full steer in the direction you want to turn and you regulate the speed of turning with the accelerator.



Put both hands on the wheel parallel to the floor and as far apart as possible. To make the tank turn to the **left**, pull **down** with your **left** hand, and **up** with your **right**.

To make the tank turn to the **right**, pull **down** with your **right** hand, and **up** with your **left**.



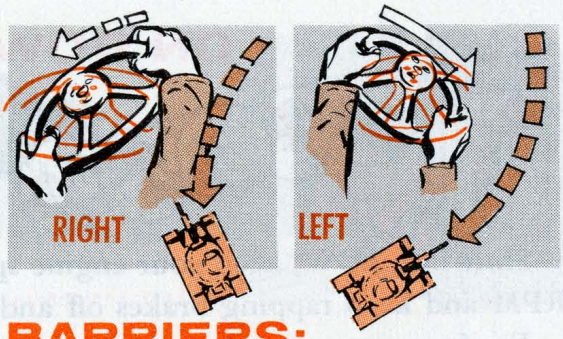


TURNING:

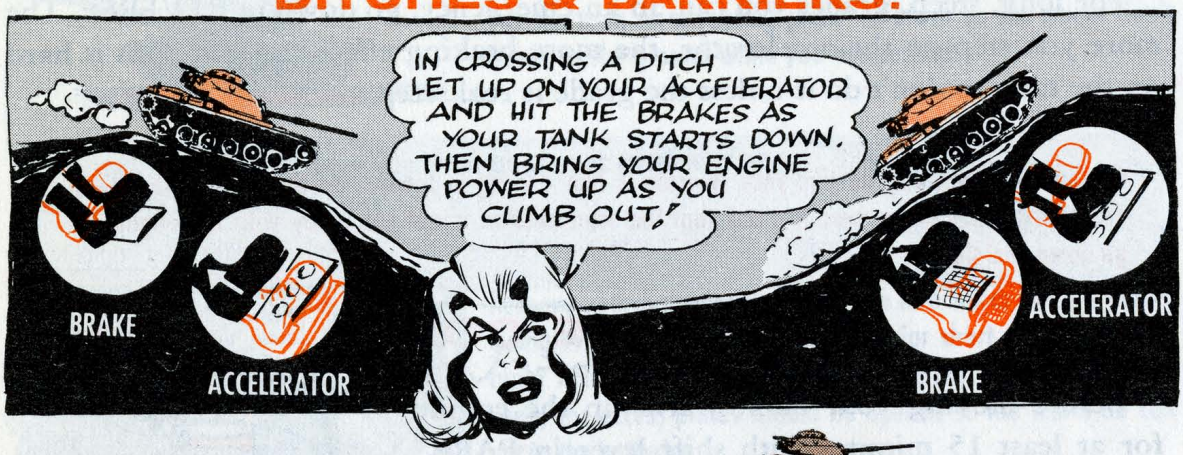
You can make a sharper turn in LOW than in HIGH. You also have better control and more pulling power for rough, soft or hilly terrain.

REVERSE:

Steering in reverse is the opposite of forward steering. If you want your back end to go to the **right**, turn the steering wheel **left**. To go **left**, you turn the steering wheel **right**.

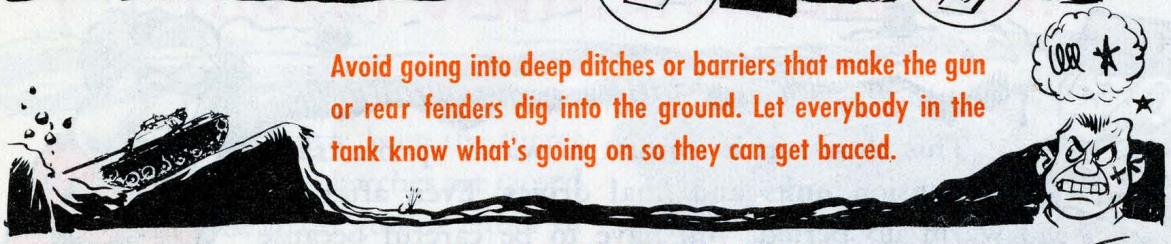


DITCHES & BARRIERS:



In going over the barrier, ease up on the accelerator when the tank passes over the balance point. Let the tank glide over the barrier before you gun the engine.

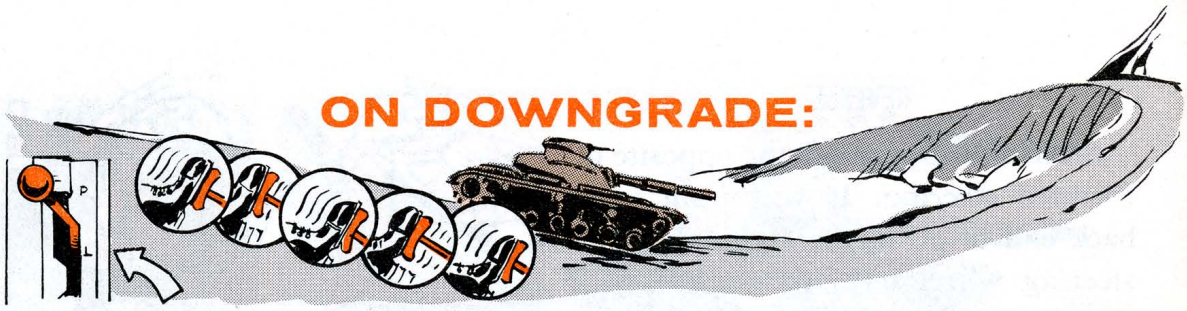
Avoid going into deep ditches or barriers that make the gun or rear fenders dig into the ground. Let everybody in the tank know what's going on so they can get braced.



ON UPGRADE:

To start on an upgrade, speed up your engine so you don't roll backward when you release the service brake. Don't try to hold a tank stationary on an upgrade for long without using your brakes or you'll overheat the transmission.

ON DOWNGRADE:



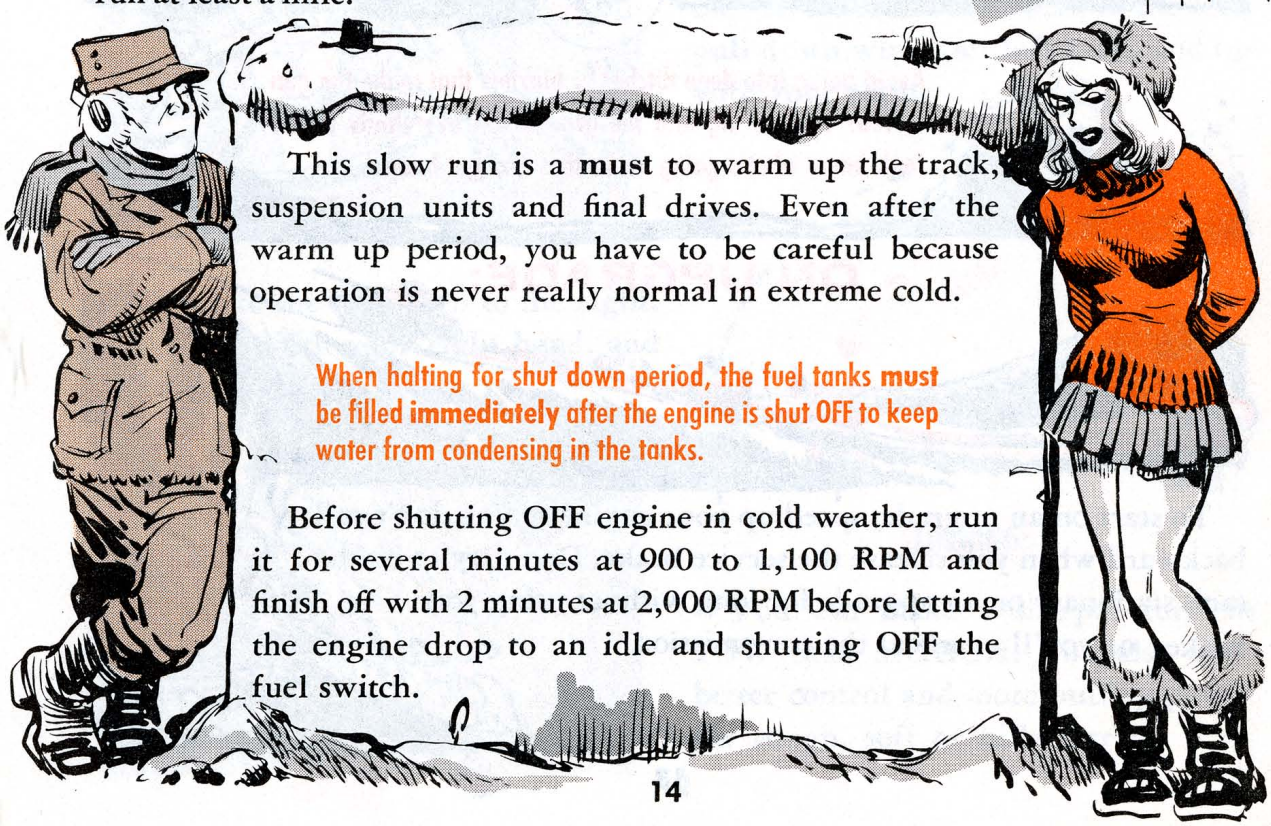
Shift into LOW, keep your engine speed within the governed speed of 2,400 RPM and keep tapping brakes off and on.

For long, steep, grades you can, in an emergency, go down in REVERSE. The more you step on the accelerator, the more braking effect you get. This is hard on the tank so don't do it unless the grade is real steep.

Remember, when you do this your steering is like driving in reverse on the level. Also, this is one of the times when there is a risk that the transmission might run away with the engine, so go down real slow.

EXTREME COLD:

Before moving your tank, warm up the engine for at least 15 minutes with shift lever in PARK. After the engine is good and warm, move out in LOW at (3 to 5 MPH). At temperatures from zero to 25 below, go at least a half mile before increasing to normal speed. At 25 to 65 below, make your slow run at least a mile.

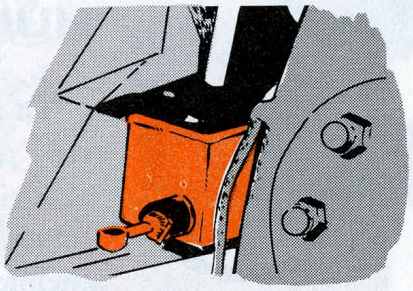


This slow run is a **must** to warm up the track, suspension units and final drives. Even after the warm up period, you have to be careful because operation is never really normal in extreme cold.

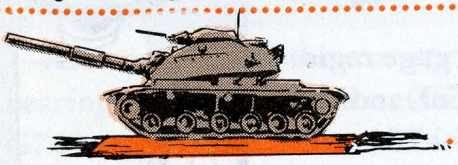
When halting for shut down period, the fuel tanks **must** be filled **immediately** after the engine is shut OFF to keep water from condensing in the tanks.

Before shutting OFF engine in cold weather, run it for several minutes at 900 to 1,100 RPM and finish off with 2 minutes at 2,000 RPM before letting the engine drop to an idle and shutting OFF the fuel switch.

OTHER THINGS YOU GOTTA WATCH IN COLD WEATHER . . .



Open the drain valves to get rid of melted snow or ice while you still have engine heat. Drain both fuel filters . . . be sure there's no water left there to freeze. Also drain the O.G. Control Box in the shift linkage at the right rear of the vehicle.



Put the tank on a footing plank or brush so the tracks don't freeze to the ground while you are parked.

Clean mud, snow, and ice from your tank as soon as possible after a halt, before they freeze in place.

Remove your batteries and stow 'em in a warm place if you're going to be parked for a long time. For short stops and overnight halts, when the power plant heating kit is going to be used, the access plates should be opened so the warm air can get to the batteries.

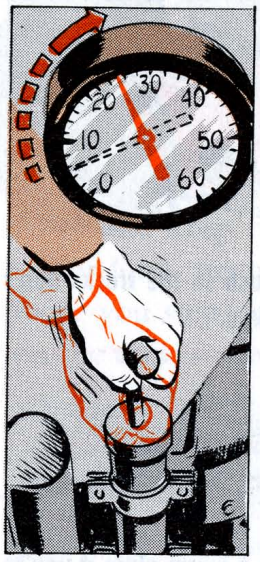
For other dope on cold weather operation see TM 9-207, FM 31-70 and FM 31-71. By the way, there is no FM on the M60. TM 9-2350-215-10 (June 60) is the driver's bible.

TURRET VENTILATOR BLOWER:

Always, but **always**, keep the turret blower ON when the hatches are closed and you fire the main gun or either of the machine guns. With the blower running, you'll be all right. Without it, a high concentration of carbon monoxide could build up, making everybody in the tank sick or even killing them.

There should be a warning sign in the cupola telling you about this danger. It will read: "Turret ventilator motor must be operating during machine gun and/or gun cannon firing to evacuate gases from turret."

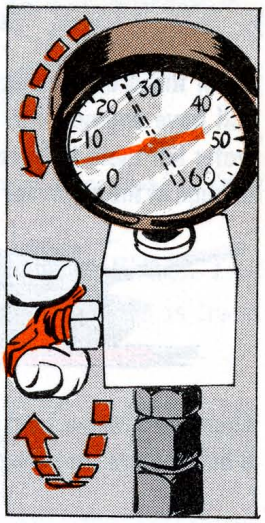
HULL TURRET SEAL:



To the left of the driver is a bicycle-type pump used to blow up an inflatable circular seal between the hull and turret. This is for fording or in case of chemical attack.

Work the pump until the gage registers 25 PSI for a waterproof and air tight hull-turret junction.

You don't traverse the turret with the seal blown up. Before traversing open the bleeder cock and let the air out.

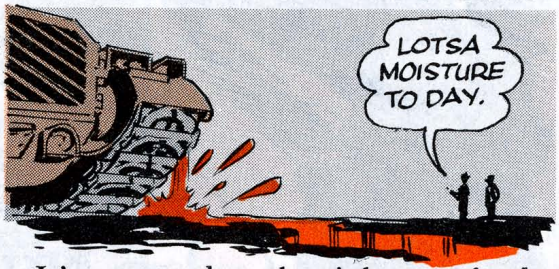


PERSONNEL HEATER:

Works on fuel oil instead of gasoline. Turns ON with the heater output switch and turns OFF the same way. Will run a few seconds after it is turned OFF while it is purging itself.

In an emergency ONLY you can stop it dead by turning OFF the master heater switch. It isn't good to do this as a regular thing because the heater can't purge itself. There is a guard over the master switch to remind you not to use it unless you have to.

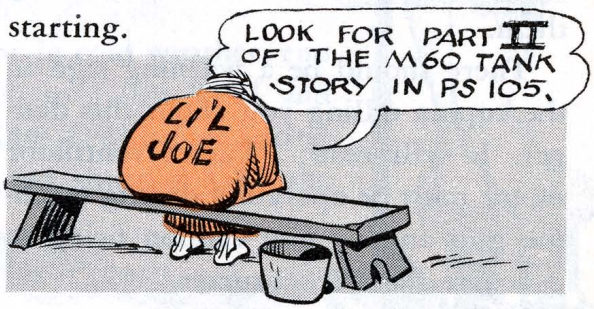
INTERPHONE BOX:

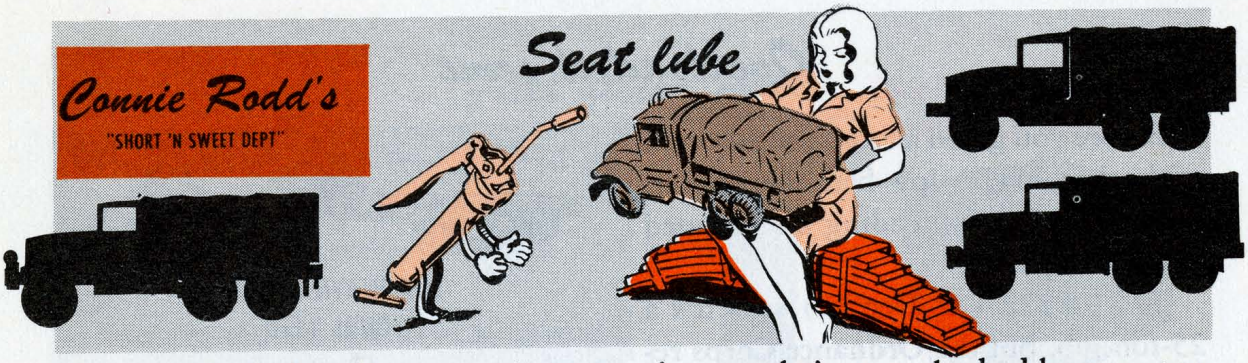


It's mounted on the right rear fender of the M60. It has two drainage holes to let out moisture that condenses in the box and a coiled cord 6 feet long instead of 10 feet like in the M48A2.

LI'L JOE:

You won't have any worries with the Li'l Joe on the M60, on account of there is no Li'l Joe. The tank has six batteries instead of four for easier starting.

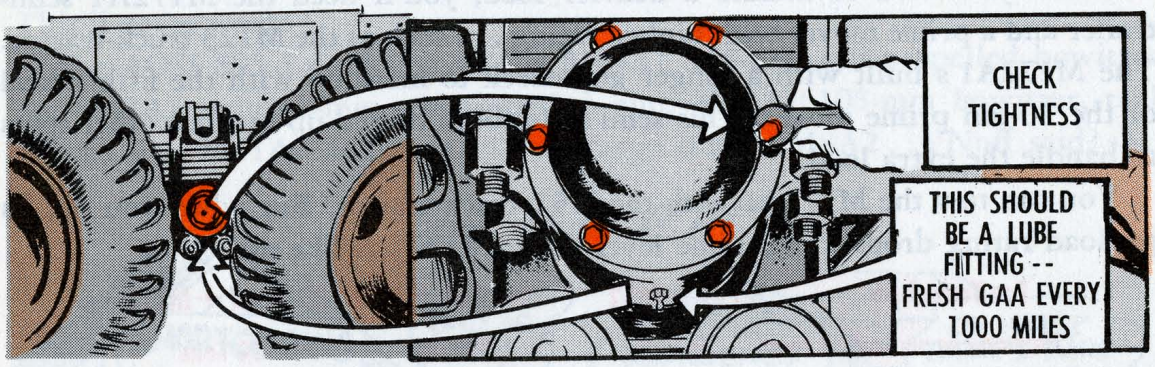




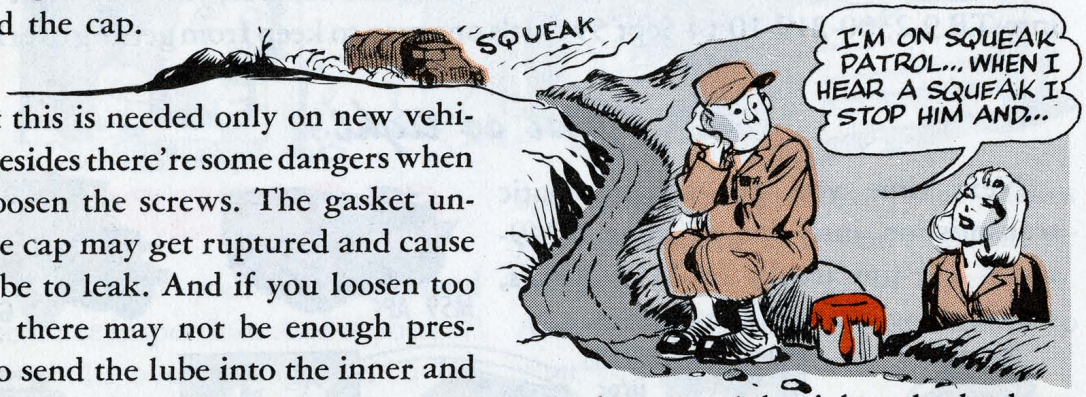
Are you mindin' the rear-spring-seat bearings on your 2½-ton (G742 and G749-series) and 5-ton (G744-series) trucks?

Those bearings are due fresh GAA every 1000 miles.

It's likely some rear-spring-seat bearings are being overlooked by some people because some trucks sport a plug where a grease fitting ought to be. But if you're reading your truck's LO like you ought to you won't miss this important lube point.



To protect the bearing seals on new trucks, some lube orders called for loosening the screws in the bearing cap and lubing until the GAA showed around the cap.

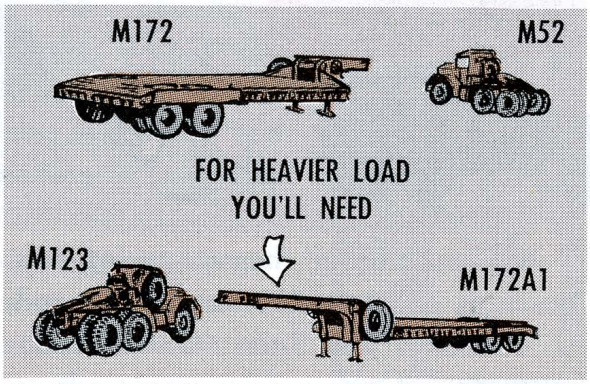


But this is needed only on new vehicles. Besides there're some dangers when you loosen the screws. The gasket under the cap may get ruptured and cause the lube to leak. And if you loosen too much, there may not be enough pressure to send the lube into the inner and outer cones where it's needed.

So take it easy with this lube job. Lube every 1000 miles until clean GAA shows around the seal at the inner side of the seat . . . like it says, f'rinstance, in Note 8 of LO 9-2320-210-10 (19 Jan 59).

In between lube jobs, check those bearing cap screws to make sure they're tight. And just so somebody else won't overlook lubing these bearings, check to see that your trucks have been equipped with grease fittings to feed their rear-spring-seat bearings.

Overloaded semi



Before you go on a cross-country trek with that M172 low-bed semitrailer, better take a new reading on its rated payload capacity.

TM 9-8222 (22 Dec 55) says it's a 25-ton job, but the Ordnance Corps redesignated it with a 15-ton cross-country rating in 1958. Change 1 (dated 30 Apr 59) to AR 711-940 tells you about this.

The braking and towing capacity of the M52 truck-tractor, the M172's prime mover, was a good part of the reason for the change. Para 7b of TM 9-8028 (13 Jun 55) tells you the M52's maximum off-highway tow-load is 15 tons.

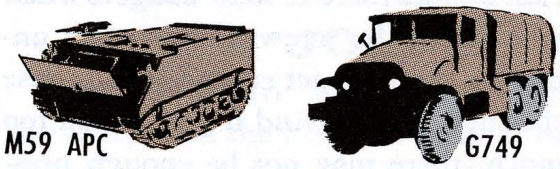
When you need to handle a heavier load, you'll need the M172A1 semitrailer and a prime mover with higher rating . . . such as the M123 truck-tractor. The M172A1's built with a longer gooseneck to mate up with the fifth wheel of the 10-ton prime mover. This semi's also been beefed-up in a few other spots to handle the extra load.

You can tow the M172A1 with the M52 truck-tractor. But when you do, its payload rating drops to the same level as the M172 . . . like so:

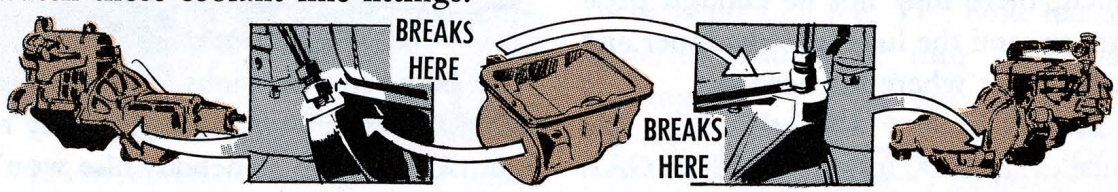
For Travel on	M172+M52	M172A1+M52	M172A1+M123
Highway or secondary road	20 Tons	20 Tons	30 Tons
Limited cross-country	15 Tons	15 Tons	25 Tons

To get a full run-down on other tractor-trailer combos, you may want to look into TB 9-2300-219-10 (4 Sept 59). It's one way to keep from getting overloaded.

Just so tight



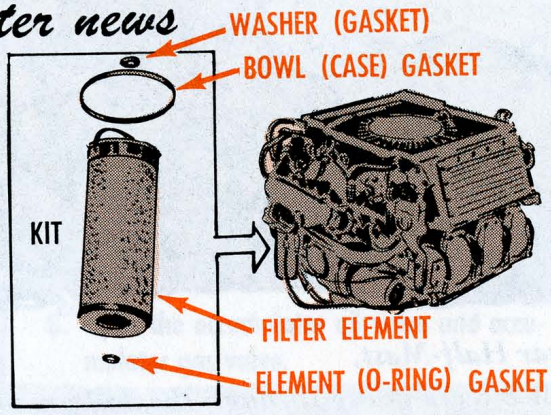
Next time you put an automatic transmission into one of your G749-series 2½-ton trucks or M59 APC's, watch those coolant line fittings.



Too much muscle power or yanking when hooking them up can cause the pan, lines or fittings to crack from the strain. When the fittings are snug . . . stop.

After snugging them up, check to see if they still leak . . . if not, fine, leave them alone. Still leaking? Just snug a **bit** more until the leaking stops.

Fuel filter news



On an AOSI 895-5 fuel injected engine, the engine fuel filter and its filter element belong together like ham and eggs.

In fact, the word is that you won't operate this engine without the right replacement fuel filter element . . . and that means not never by nobody.

If you want to know how to get your replacement, well, just ask for Kit, Filter Element, Fluid Pressure, FSN 2910-710-9267. It includes the filter element, a bowl gasket, an element gasket and a washer for the bolt head.

Never use a replacement fuel filter that's meant for the AOS 895-3 engine. This'll never work.

The AOSI 895-5 engine is on the M44A1 155-mm self-propelled howitzer, the M42A1 twin 40-mm self-propelled gun, M52A1 105-mm howitzer, tank 76-mm gun M41A2 and M41A3 and cargo tractor M8A2 . . .'Nuff said?

G-2 that CMI

BE PREPARED

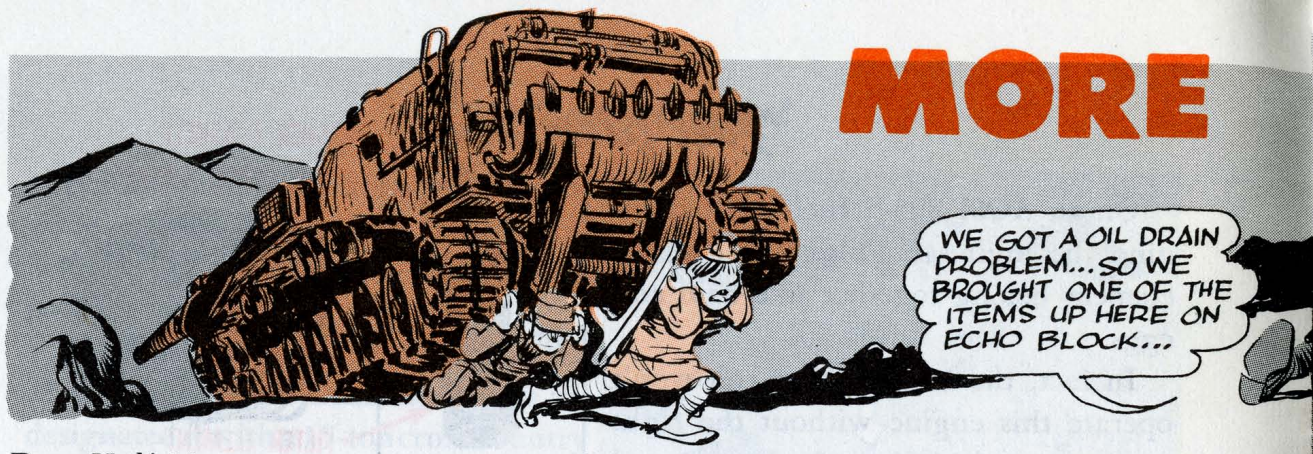
That applies to your next command maintenance inspection. And if you roll your eyeballs over Change 6 (16 Jan 61) to AR 750-8 you'll be better prepared.

That change tells you that you'll no longer have **Major** and **Minor** Deficiencies. 'Stead, you'll get hit with **Deficiencies** and **Shortcomings.**

A **Deficiency** is a "materiel defect or operational malpractice" that makes your equipment so it won't operate or makes it unsafe for you or other guys. Also it could cause further damage to your equipment.

A **Shortcoming** is a "materiel defect or operational malpractice"—other than a deficiency—which you've got to get fixed to keep your equipment in top shape.

Of course, these new terms apply to all technical services' equipment.



Dear Half-Mast,

We were going through the daily maintenance routine in our tracks the other day when we ran into a problem in checkin' our hydraulic power pack's lube level in the M53 SP gun and the M55 SPH.

In checking the dipstick we read where the oil drain and the accumulator oil valves have to be open to let the oil drain into the reservoir so's to get a true level check.

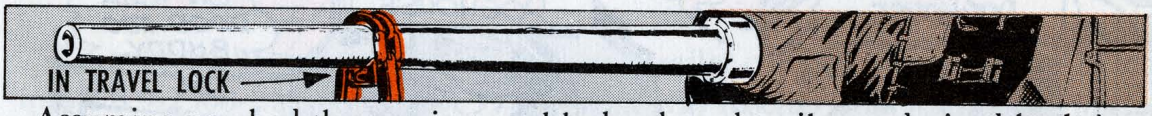
The thing that stumped me is: How do you get the oil that was drained from the accumulator and both adjusting cylinders put back into the system after making this check?

Mr. C. F. H.

Dear Mr. C. F. H.,

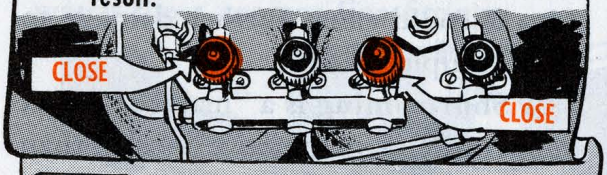
The question is legit.

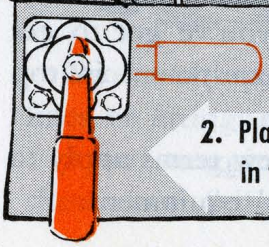
This bit of info oughta put you, along with the oil, back into the system and on the right track.



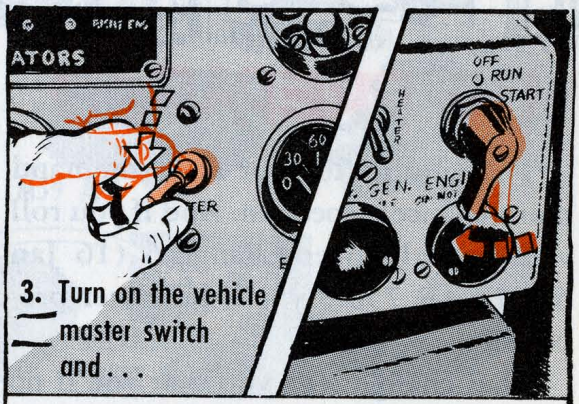
Assuming you had the gun in travel lock when the oil was drained back into the reservoir for the oil level check, then . . .

1. First, close the oil drain and accumulator oil valves that got opened to make the oil level check. If accumulator oil valve is left open, excessive operating pressure 'll result.





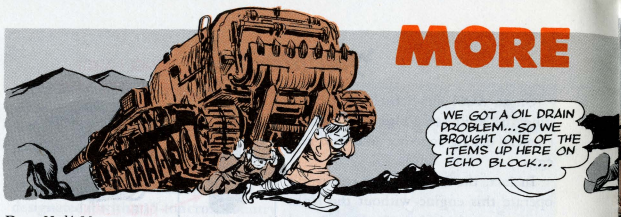
2. Place traverse block-off valve in the equilibrate position.



3. Turn on the vehicle master switch and . . .

start your Li'l Joe, or your main engine. You do this to be sure you've got the right voltage for the electric motor on the hydraulic power pack.

MORE TO IT



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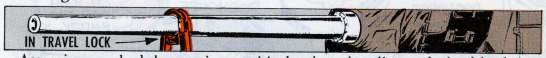

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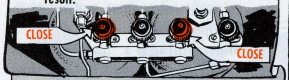
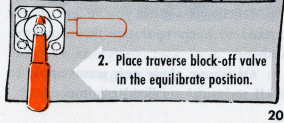
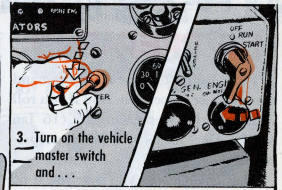


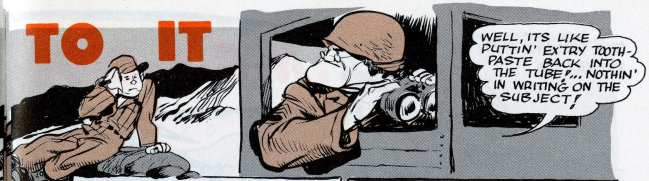
2. Place traverse block-off valve in the equilibrate position.



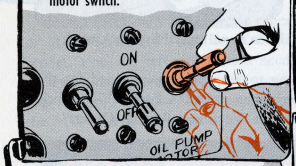
3. Turn on the vehicle master switch and . . .



start your Li'l Joe, or your main engine. You do this to be sure you've got the right voltage for the electric motor on the hydraulic power pack.

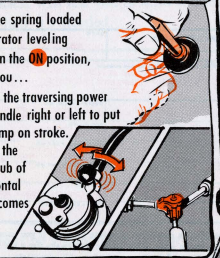


4. Turn on the master hydraulic oil pump motor switch.

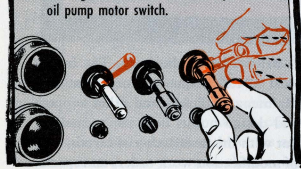


5. Hold the spring loaded equilibrator leveling switch in the ON position, while you . . .

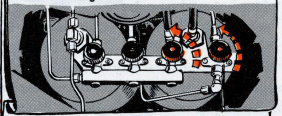
6. Rotate the traversing power control handle right or left to put the oil pump on stroke. Hold until the junction hub of the horizontal cylinders comes to a stop.



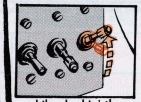
7. Release the spring loaded equilibrator leveling switch and turn off the hydraulic oil pump motor switch.



8. Open the accumulator oil valve and accumulator gas valve.



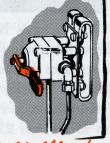
9. Turn on the hydraulic oil pump motor switch and operate the power traverse control handle (left or right) . . .



while checkin' the nitrogen pressure gage. Don't use the equilibrator leveling switch.

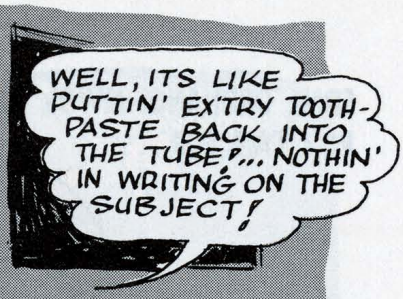
10. When you read the nitrogen operating pressure (810-PSI for the M55's and 1240-PSI for the M53's) turn off the hydraulic oil pump motor switch.

Now, close both the accumulator oil and accumulator gas valves and put the block-off valve in traverse position . . . that's all there is to it.



Half-Mast

TO IT



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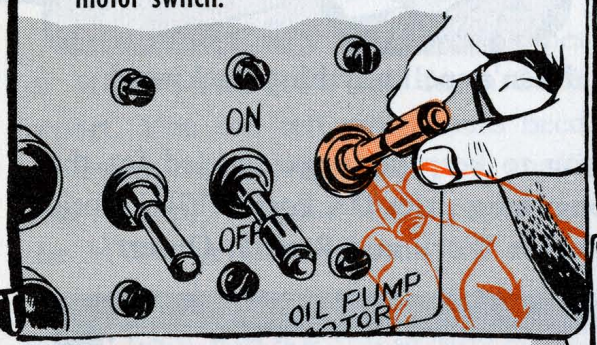
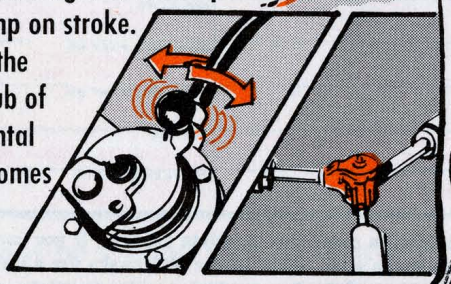
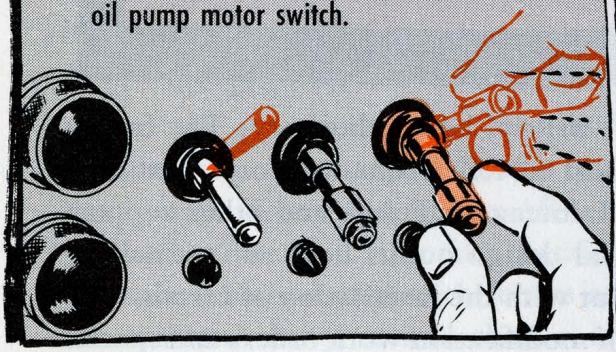


5. Hold the spring loaded equilibrator leveling switch in the **ON** position, while you...

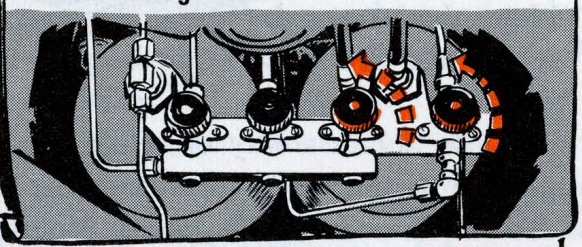
6. Rotate the traversing power control handle right or left to put the oil pump on stroke. Hold until the junction hub of the horizontal cylinders comes to a stop.



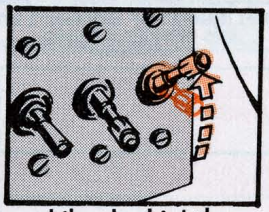
7. Release the spring loaded equilibrator leveling switch and turn off the hydraulic oil pump motor switch.

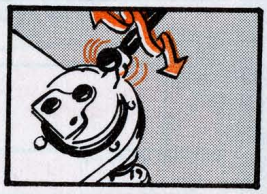


8. Open the accumulator oil valve and accumulator gas valve.



9. Turn on the hydraulic oil pump motor switch and operate the power traverse control handle (left or right)...





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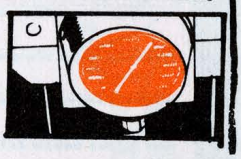

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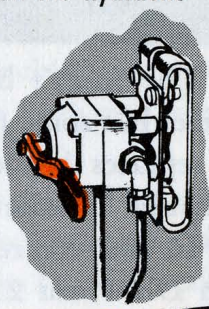
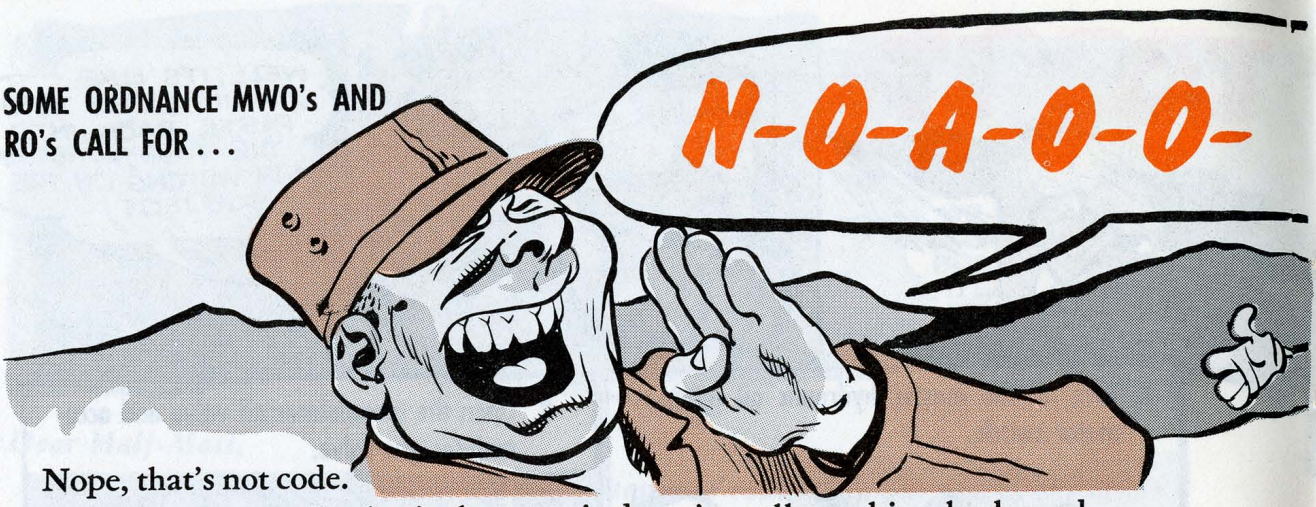


Half-Mast

SOME ORDNANCE MWO's AND RO's CALL FOR...



Nope, that's not code.

And don't strain the brain because it doesn't spell anything backward.

Give up?

It's just Connie's way of reminding you to keep your eyes peeled for that mighty important little form with the long, long title: DA Form 2170 "Notice of Accomplishment of Ordnance Modification Work and Retrofit Order."

NOTICE OF ACCOMPLISHMENT OF ORDNANCE MODIFICATION WORK AND RETROFIT ORDER
(AR-750-930)

DATE: DATE FORM IS SENT IN

TO: RESPONSIBLE NATIONAL MAINTENANCE POINT (OR AS DIRECTED IN MWO OR RO).

FROM: (Name of installation and address) ORGANIZATION SENDING IN REPORT GIVE COMPLETE ADDRESS

MWO ORD OR RO NO.: LIKE IT'S GIVEN RIGHT ON THE MWO, RO OR COMBINATION OF MWO AND RO.

REGISTRATION NO.: USA OF VEHICLE OR SERIAL NO. OF OTHER EQUIPMENT

NOMENCLATURE (Major Item): LIKE IT'S USED IN THE MWO OR RO.

SERIAL NO.: OF COMPONENTS (WHEN APPLICABLE)

NOMENCLATURE (Component): WHEN APPLICABLE

ORDNANCE PART NO.: OF COMPONENTS (WHEN APPLICABLE)

NOMENCLATURE (Component): DITTO

ORDNANCE PART NO.: DITTO

INSTALLING ORGANIZATION: IDENTIFICATION OF ORGANIZATION WHICH ACTUALLY APPLIED THE MWO OR RO. GIVE COMPLETE ADDRESS

STATION: ITS COMPLETE ADDRESS HERE.

TYPED OR PRINTED NAME: PERSON RESPONSIBLE FOR SENDING IN THIS FORM

SIGNATURE: HE SIGNS HERE

COMPLETION DATE: DATE RO OR MWO WAS COMPLETED.

REMARKS (Use reverse side or attachments if required)

Use this space for any added info or explanation you think is needed to complete report. If you used an MWO or RO kit, you can put the kit number in this space also, if the RO or MWO asks for a kit number. You can continue the "remarks" block on the back of the form, and even on extra plain sheets, which you can attach firmly to the basic form.

DA FORM 1 OCT 58 2170

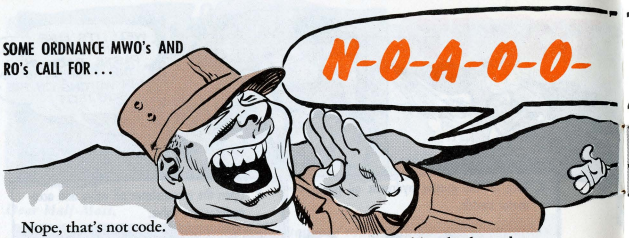
GPO 1958 O—483945

The form's been around for sometime, but some people still don't know it replaces the old RSA Form 681 "Field Change Installation Report."

In case you're not yet squared away on DA Form 2170, you can learn all about it in AR 750-930 (29 Sept 58).

Briefly, here's the story: The form's used to tell Ordnance Corps National Maintenance Points and other support and design outfits how you're making out with the installation of certain type of modification work orders and special weapons retrofit orders.

SOME ORDNANCE MWO's AND RO's CALL FOR . . .



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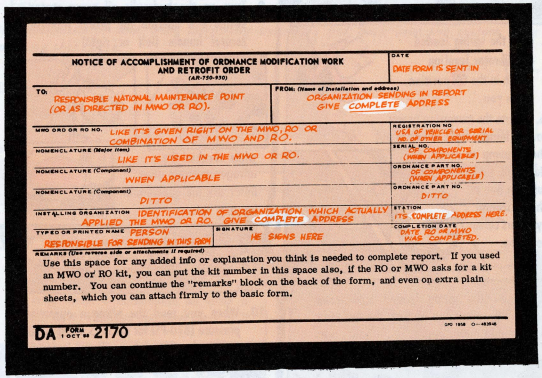

NOTICE OF ACCOMPLISHMENT OF ORDNANCE MODIFICATION WORK AND RETROFIT ORDER (AR-750-930)

DATE: DATE FORM IS SENT IN

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MWO ORD OR RO NO.: LIKE IT'S GIVEN RIGHT ON THE MWO, RO OR COMBINATION OF MWO AND RO.

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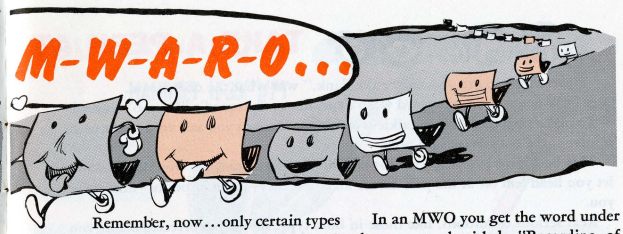


Remember, now . . . only certain types of MWO's and RO's call for a 2170 report. You can tell which ones need reporting easy enough. For one, you'll find a supply of these forms packed in the MWO or RO kit. And for two—even if no kit is provided—the MWO or RO itself will tell you to send in the form when it's needed.

In an MWO you get the word under the paragraph titled: "Recording of Modification." In an RO the instructions are given under "Form Entry Requirements."

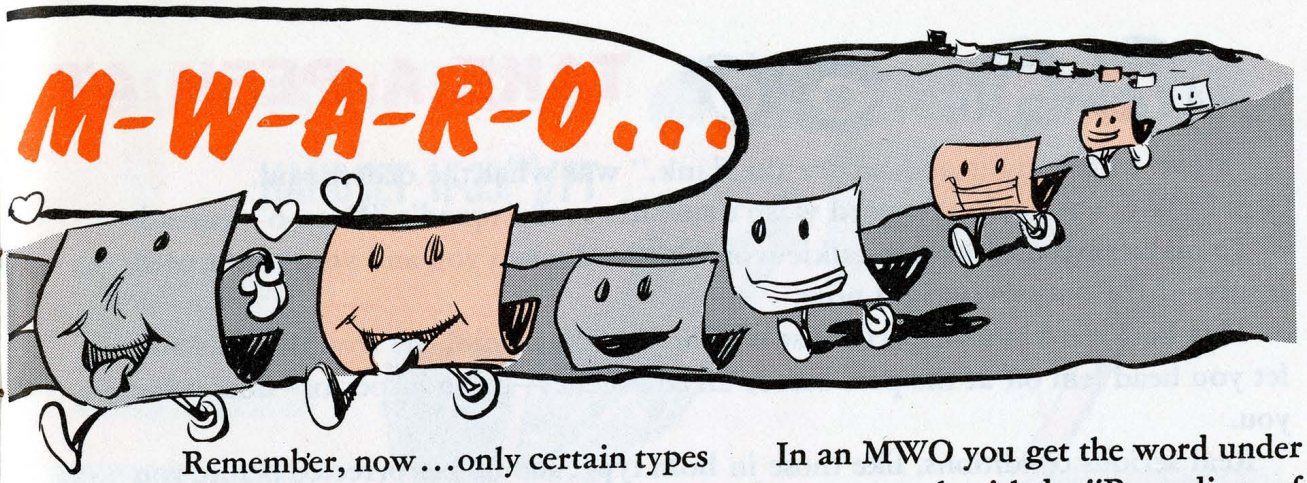
The form's easy to fill, and no cover letter is needed when it's sent in. But it does have to be made out in three copies, because they're used like this:

1. The original copy goes to the National Maintenance Point or agency listed under reporting instructions in the MWO or RO.
2. One copy goes to the Ordnance officer at your outfit's command headquarters.
3. One copy stays with you—the outfit which makes out the form.

It might be a good idea to scan your MWO and RO file right now. If your outfit's failed to send in a DA Form 2170 when it was called for . . . well, it's not too late yet.

You can get copies of the form and the AR from your post publications section, or your direct support outfit can get 'em for you. Get 'em both and keep 'em handy, like it says in the AR.

Last but not least . . . make certain you fill in your DA 2170's right. This way you won't be bothered with letters asking for clarification or more data. Don't abbreviate or cut your info short . . . give all that the MWO asks for and make it complete.



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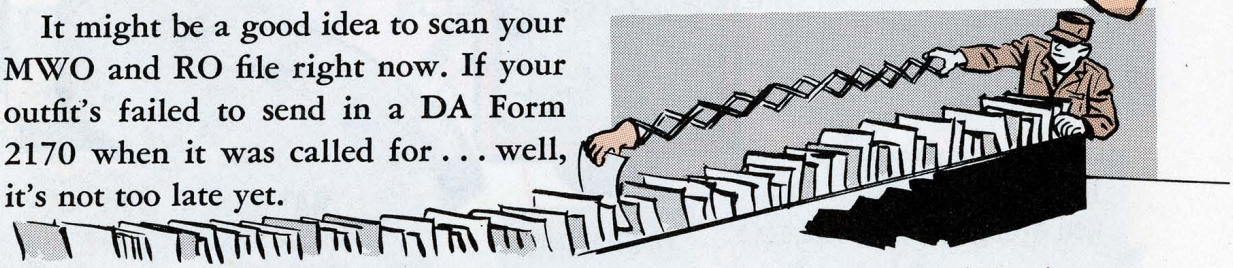

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TAKE A PEEK AT

"Move to the right and secure the flank," was what the orders said.

A Perk-6 was dead; the word wasn't spread . . . the squad's "Deep-6" instead.

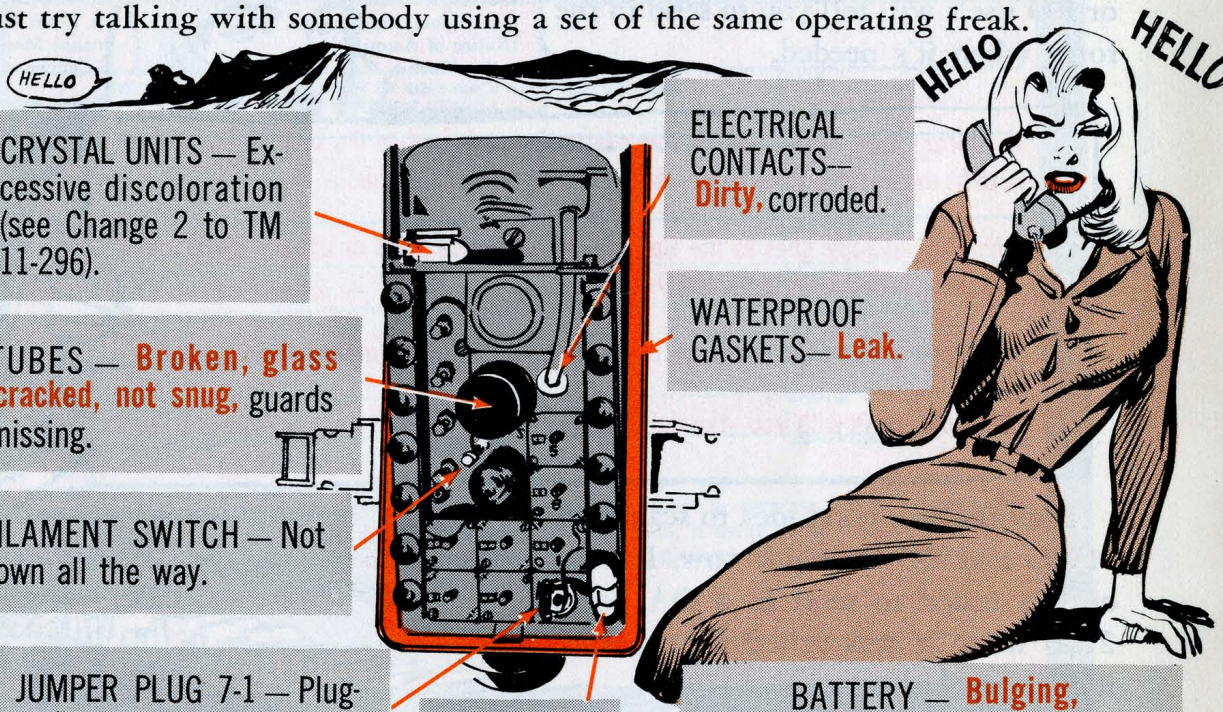
To make sure your handie-talkie won't be dead when you and your outfit need it, give it the once-over right now.

This Be-Your-Own-Inspector list will help you pinpoint the trouble spots and let you head 'em off at the pass before an emergency—or an inspector—does it for you.

Real serious conditions, like those in **bold type**, should be corrected before you use the Perk-6 again.

First off, you should see to it that the equipment is free from dust and dirt and that all screws are accounted for and tight. Naturally, you always take out the battery when your set is stored or not to be used for some time. This cuts down on battery corrosion.

To test whether your handie-talkie is pre-tuned to the right channel frequency, just try talking with somebody using a set of the same operating freak.



CRYSTAL UNITS — Excessive discoloration (see Change 2 to TM 11-296).

TUBES — **Broken, glass cracked, not snug,** guards missing.

FILAMENT SWITCH — Not down all the way.

JUMPER PLUG 7-1 — Plugged wrong into test socket.

PUBS AND FORMS—TM 11-296 (Sept 55) with Changes 1 and 2. DA Form 11-238 should be filled in and up to date.

OPERATING CRYSTAL—Not snug.

SPARE TUBES—Should have 13.

ELECTRICAL CONTACTS—**Dirty,** corroded.

WATERPROOF GASKETS—**Leak.**

BATTERY — **Bulging, leaking, not snug in socket.**

BATTERY CABLE—**Broken,** kinked.

BATTERY PLUG—Broken.

TAKE A PEEK AT YOUR AN/PRC-6

"Move to the right and secure the flank," was what the orders said.

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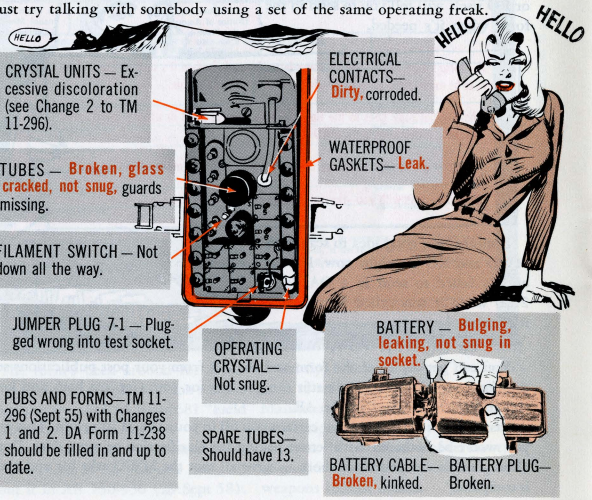
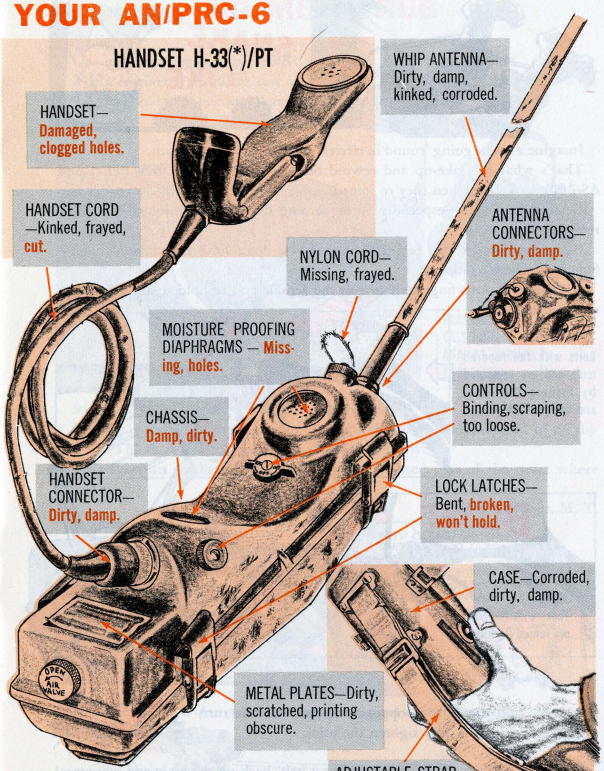
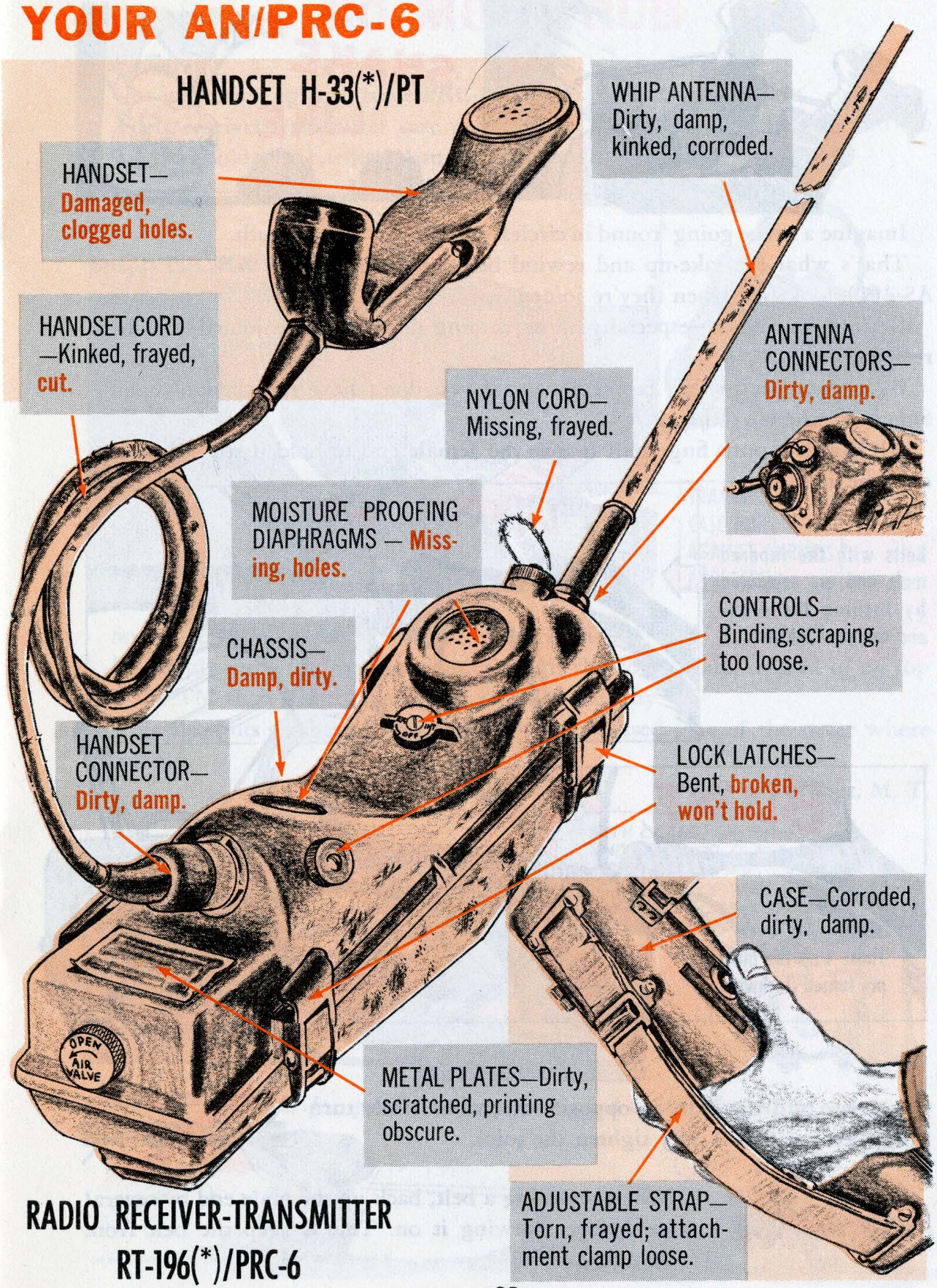




YOUR AN/PRC-6



RADIO RECEIVER-TRANSMITTER RT-196(*)/PRC-6

Imagine a snake going 'round in circles with its tail in its mouth.

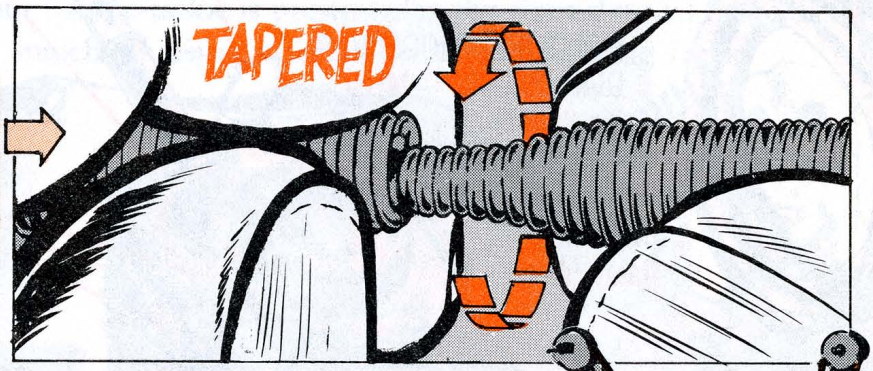
That's what the take-up and rewind belts of Projector Sets AN/PFP-1 and AS-2(1) look like when they're joined.

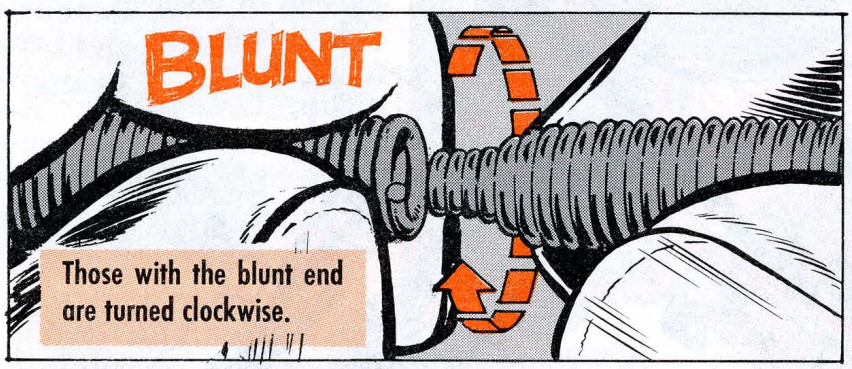
Getting 'em apart—especially those coming down the line joined—can be a real problem.

But the separatin' can be made easy if you don't have the chewin' habit—fingernail chewin', that is.

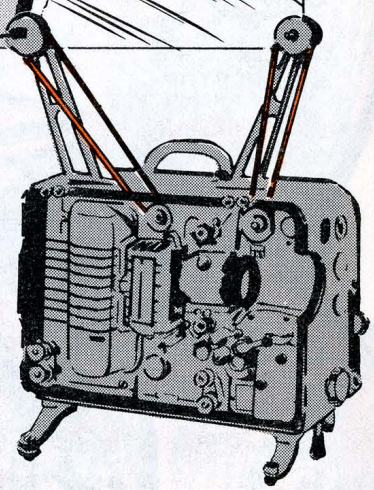
All you do is put a fingernail against the female end to hold it still while you turn the male end.

Belts with the tapered male end are separated by turning the other end counter-clockwise.

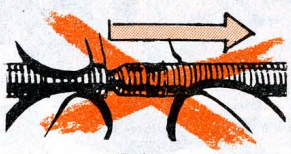


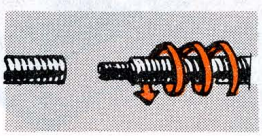


Those with the blunt end are turned clockwise.



Never pull the belts in opposite directions while turning, because that'll only tighten the joint.





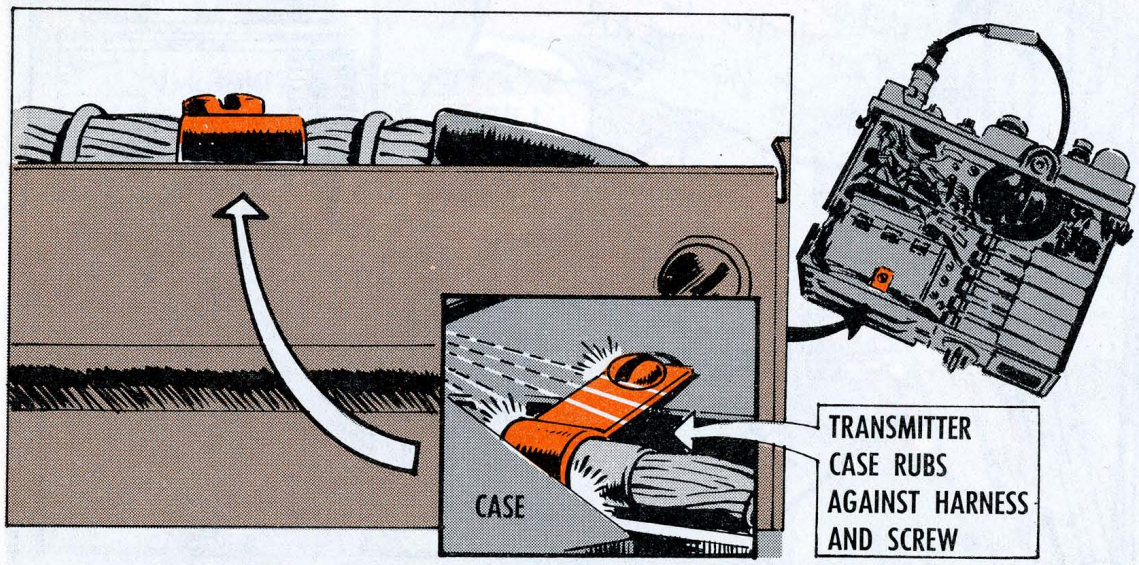
When replacing a belt, back up the male end by several turns before screwing it on. That'll keep the belt from twisting.

NO MORE RUB

Dear Editor,

Our unit came up with some PRC-8's that have given us trouble.

Their receiver-transmitter case rubs against both the battery harness and the screw that holds the harness clamp to the chassis.

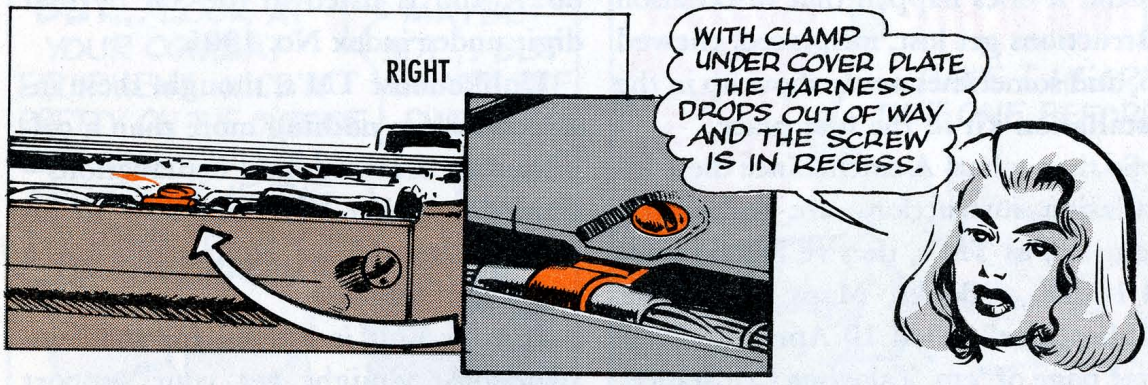


So we've found a simple way to correct this.

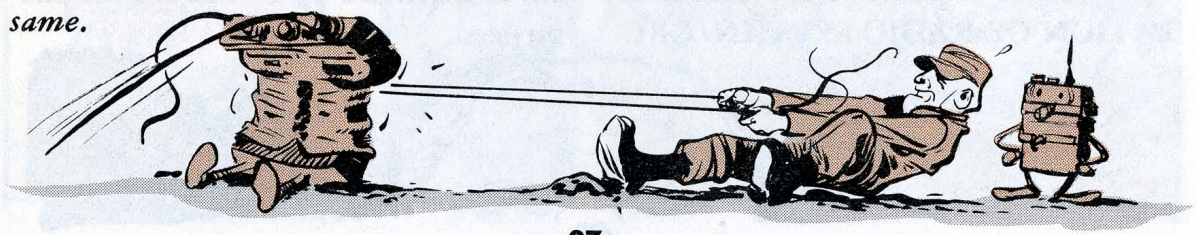
By simply screwing the clamp underneath the cover plate, instead of on top like the TM shows, the harness drops out of the way.

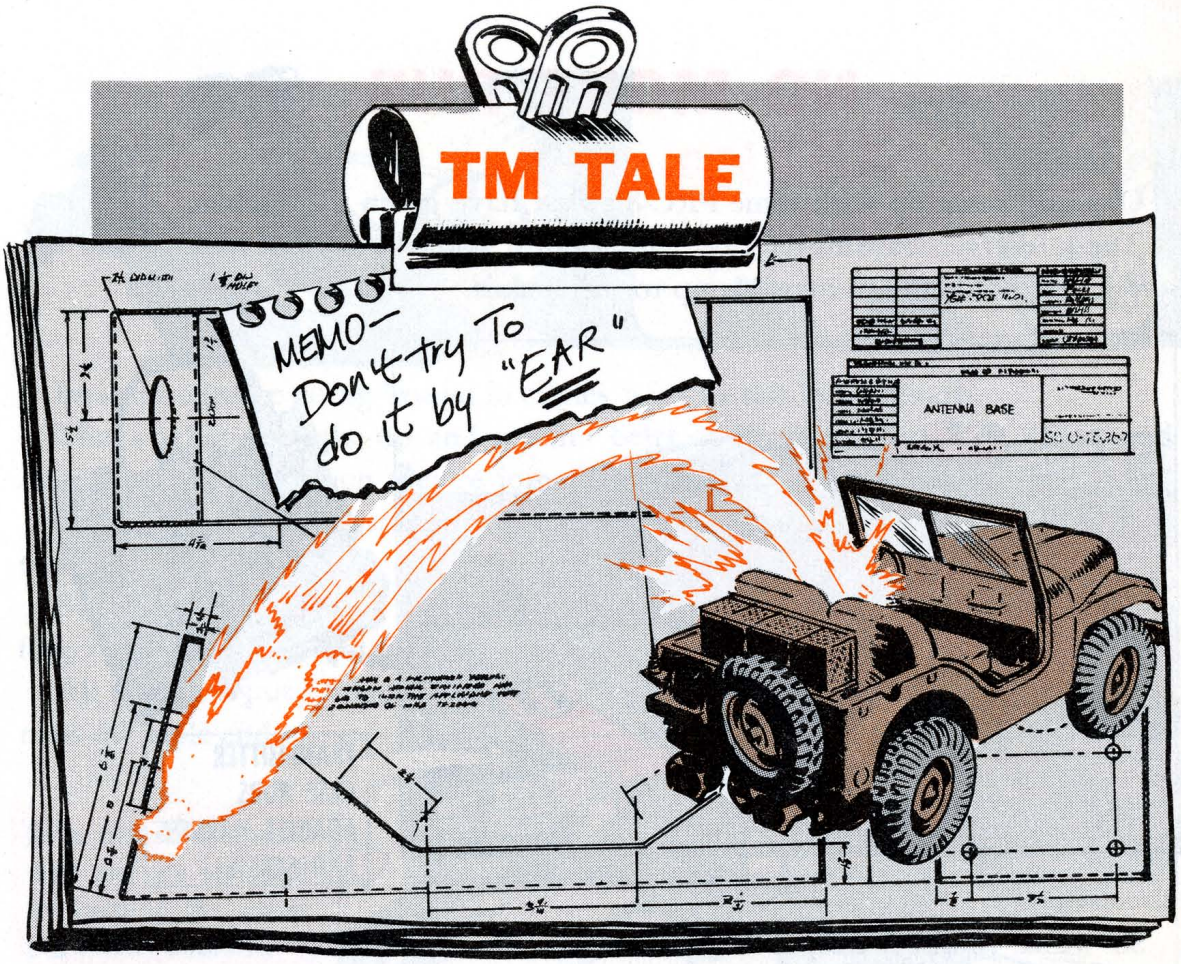
This also puts the head of the screw in the recessed part of the cover where it belongs.

MSgt. M. T.



ED NOTE—Thanks for passing along your good deal. Other units can do the same.





Trying to install electronic gear on a vehicle without the right instructions could lead to electrifying—maybe even electrocuting—results.

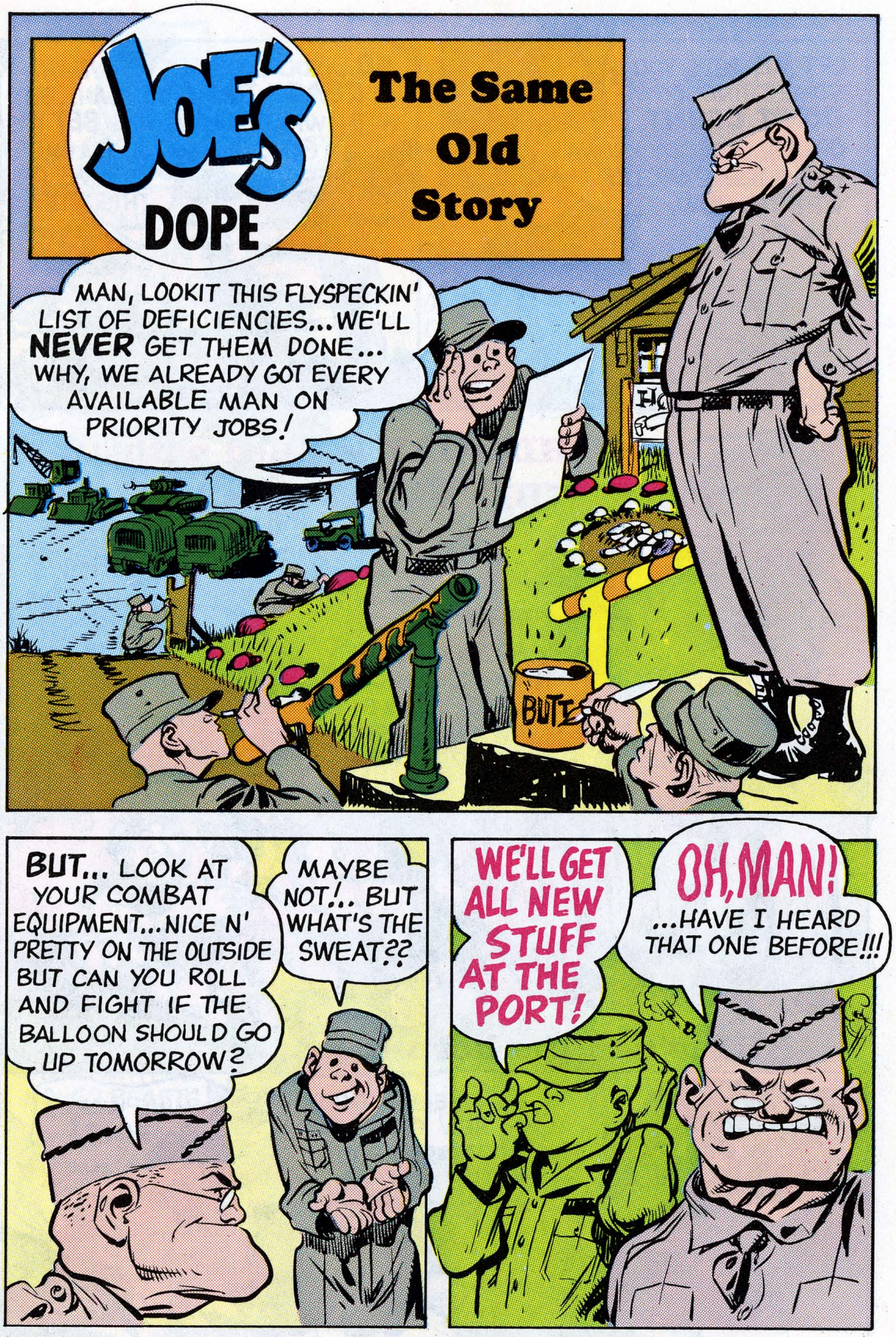
And it does happen that installation instructions get lost, misplaced, chewed up, and sometimes never show up in the installation kit in the first place.

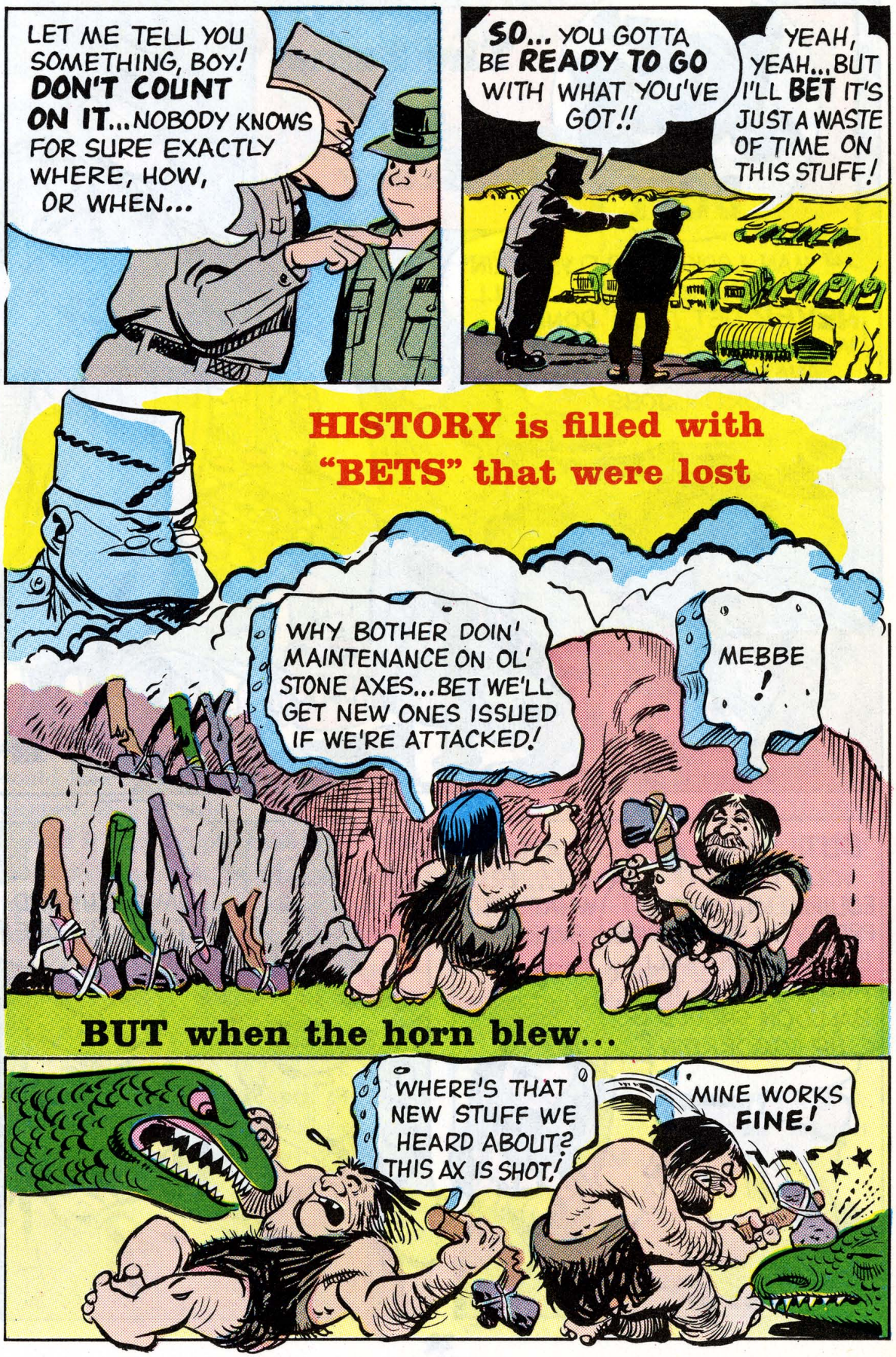
So then what! A cinch. Since these installation instructions are technically identified as TM's, they're listed in SM 11-1-7600, "Books, Maps and Other Publications" dated 10 April 59. Page after page of 'em. Take one f'rinstance:

"INSTRUCTIONS FOR INSTALLATION OF RADIO SETS AN/GRC-3 to 8, AN/VRQ-1 to 3, AN/VRC-7-10 and VRC-16 to 18 on TRUCK, ¼ TON 4x4 UTILITY, M38 and M38A1." This pub goes under FSN 7610-092-8827, and is listed in the SM by that digit under index No. 1305.

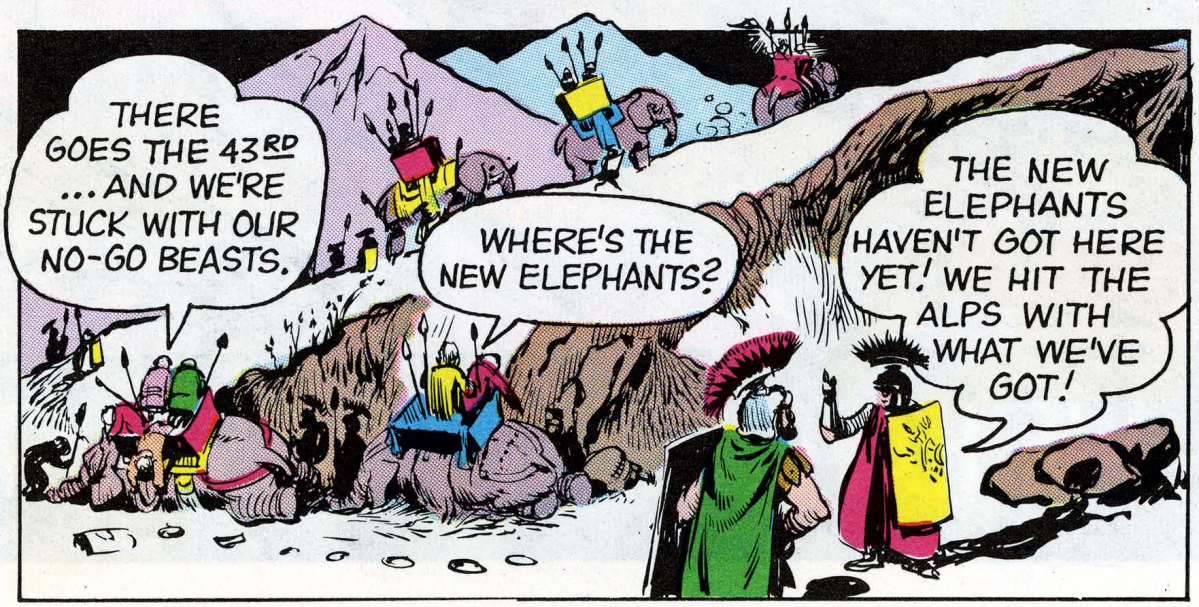
Unlike most TM's, though, these instructions are nothing more than a collection of drawings and explanations—stapled together—showing how to install the particular equipments on a particular vehicle.

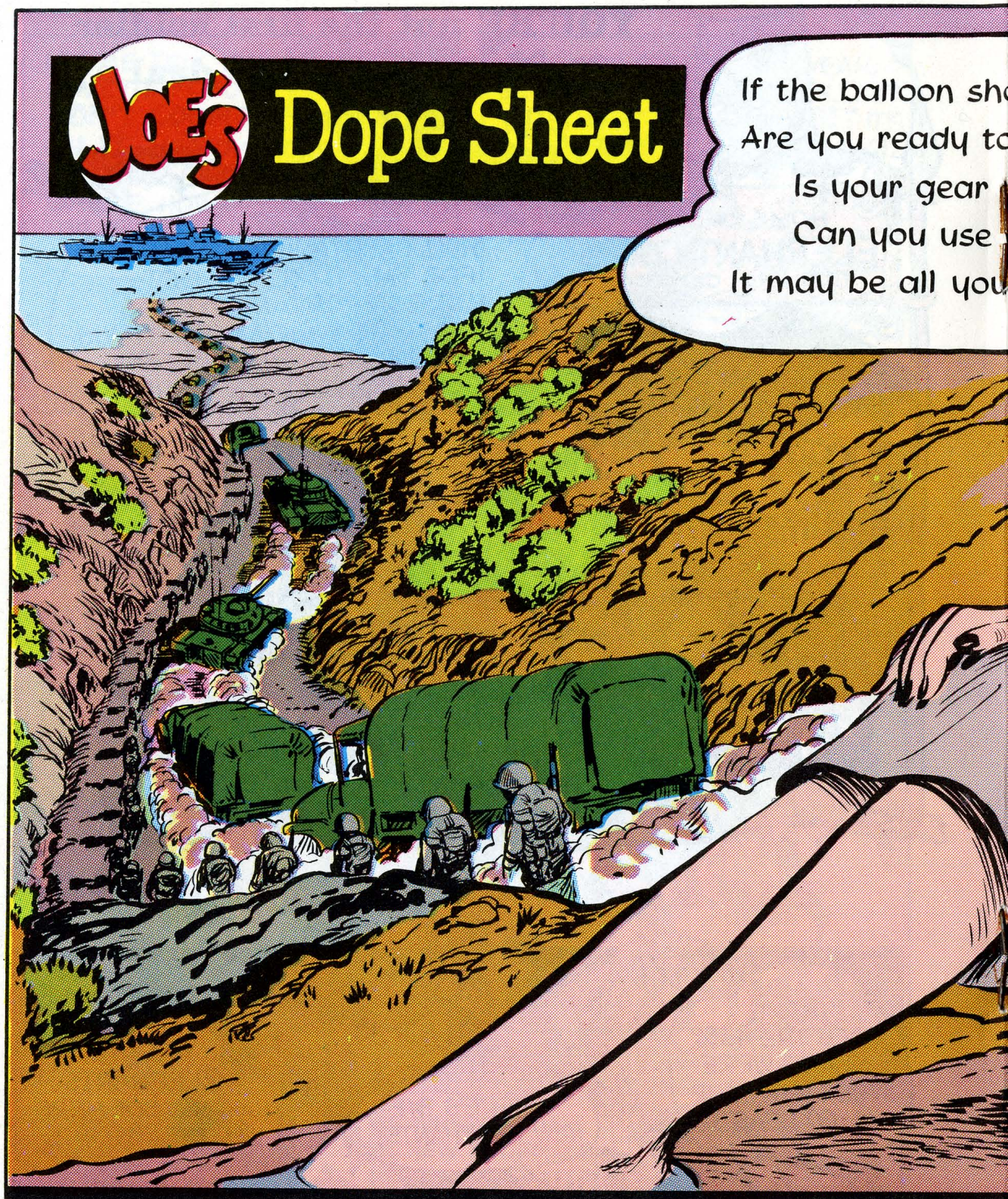
If your unit is hurtin' for some instructions, y'might get your support unit to check SM 11-1-7600 for the one you need.


JOE'S DOPE
The Same Old Story
MAN, LOOKIT THIS FLYSPECKIN' LIST OF DEFICIENCIES... WE'LL NEVER GET THEM DONE... WHY, WE ALREADY GOT EVERY AVAILABLE MAN ON PRIORITY JOBS!
BUTT
BUT... LOOK AT YOUR COMBAT EQUIPMENT... NICE N' PRETTY ON THE OUTSIDE BUT CAN YOU ROLL AND FIGHT IF THE BALLOON SHOULD GO UP TOMORROW?
MAYBE NOT!.. BUT WHAT'S THE SWEAT??
WE'LL GET ALL NEW STUFF AT THE PORT!
OH, MAN!
...HAVE I HEARD THAT ONE BEFORE!!!


LET ME TELL YOU SOMETHING, BOY! DON'T COUNT ON IT... NOBODY KNOWS FOR SURE EXACTLY WHERE, HOW, OR WHEN...
SO... YOU GOTTA BE READY TO GO WITH WHAT YOU'VE GOT!!
YEAH, YEAH... BUT I'LL BET IT'S JUST A WASTE OF TIME ON THIS STUFF!
HISTORY is filled with "BETS" that were lost
WHY BOTHER DOIN' MAINTENANCE ON OL' STONE AXES... BET WE'LL GET NEW ONES ISSUED IF WE'RE ATTACKED!
MEBBE!
BUT when the horn blew...
WHERE'S THAT NEW STUFF WE HEARD ABOUT? THIS AX IS SHOT!
MINE WORKS FINE!

BUT...when the order came...



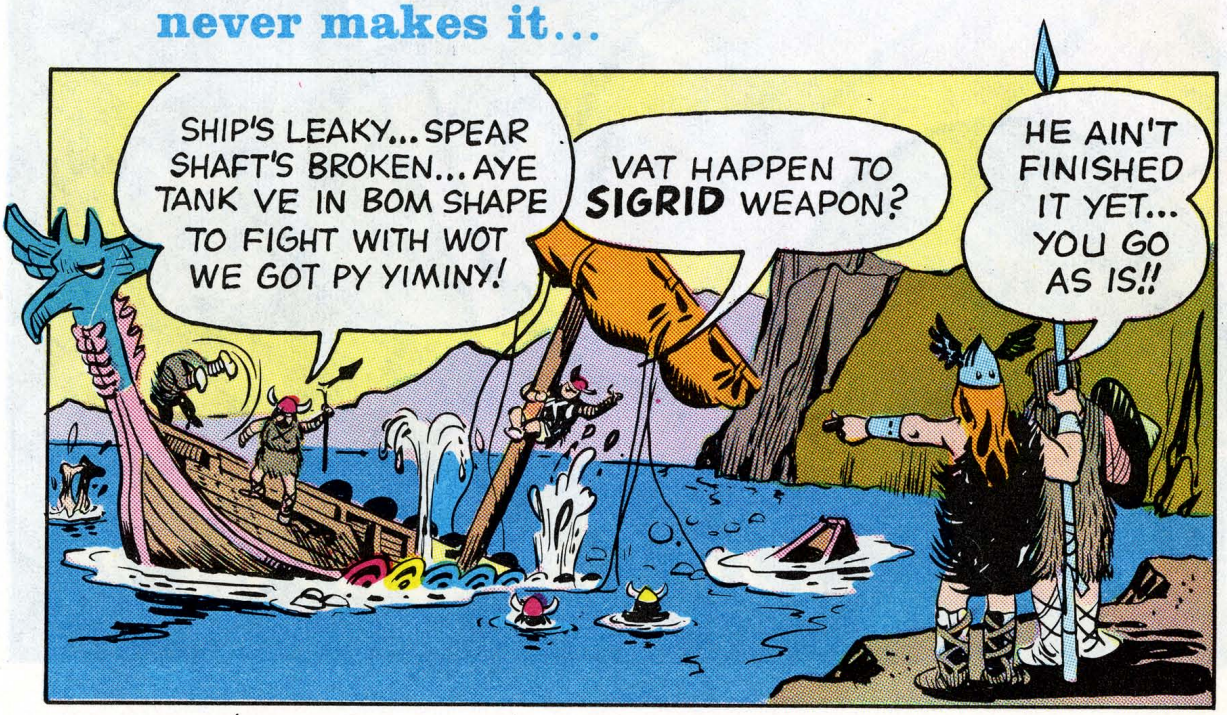


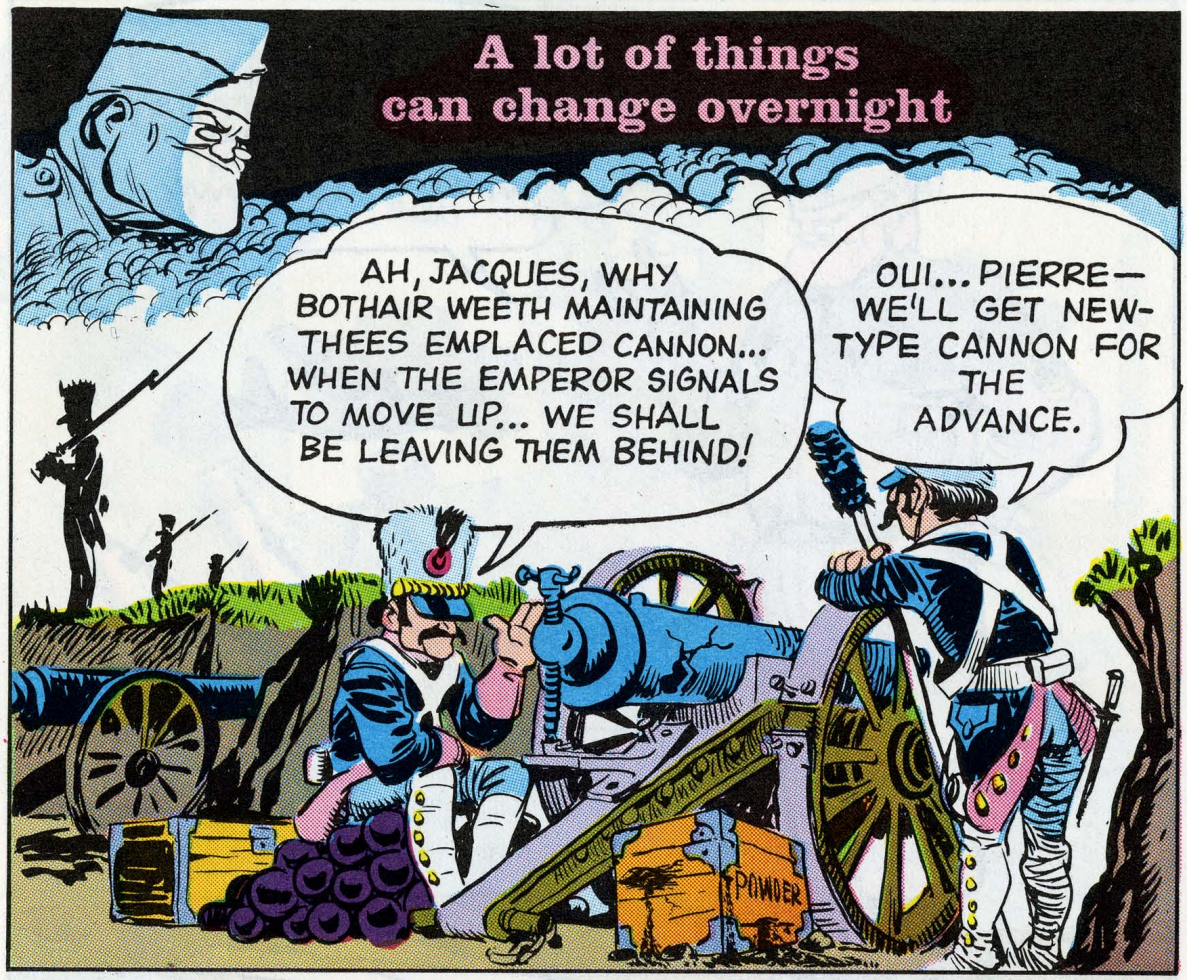
WE HAVE THE WORLD'S BEST E

JOE'S Dope Sheet
If the balloon should go up today,
Are you ready to get under way?
Is your gear sharp or shot?
Can you use what you got?
It may be all you'll have...who can say?
WE HAVE THE WORLD'S BEST EQUIPMENT ...Take care of it

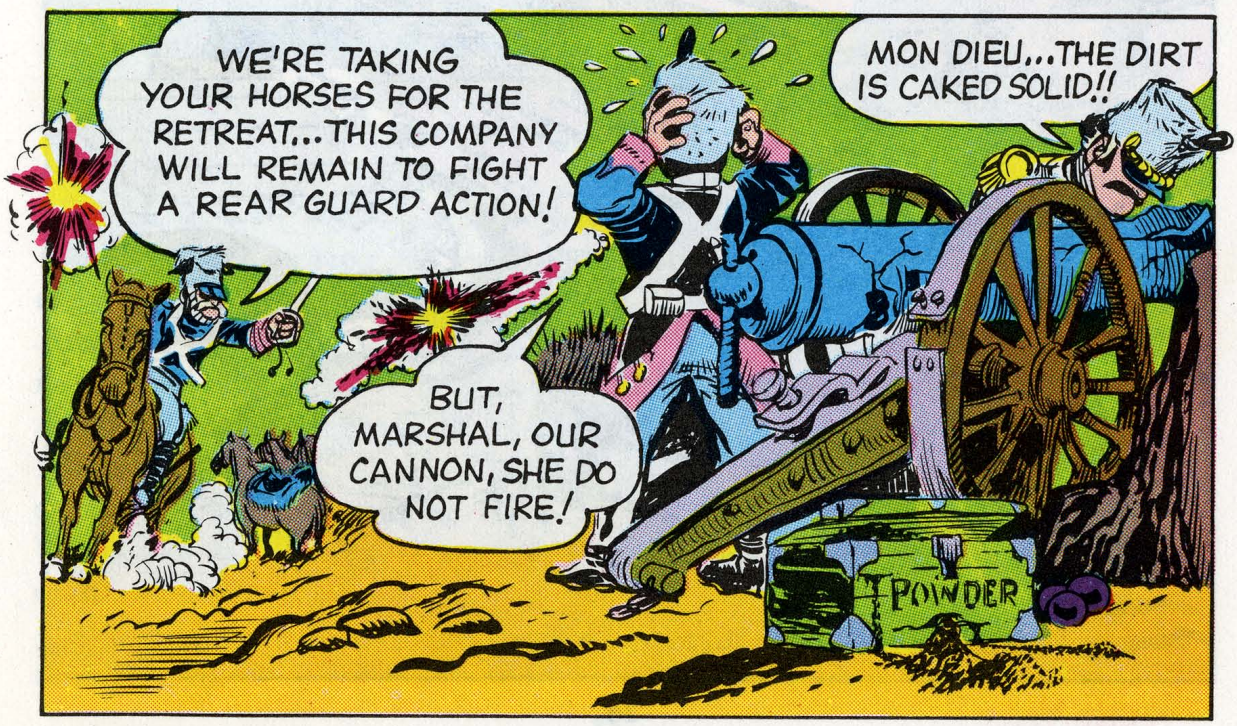
ould go up today,
o get under way?
sharp or shot?
what you got?
'll have...who can say?
QUIPMENT ...Take care of it

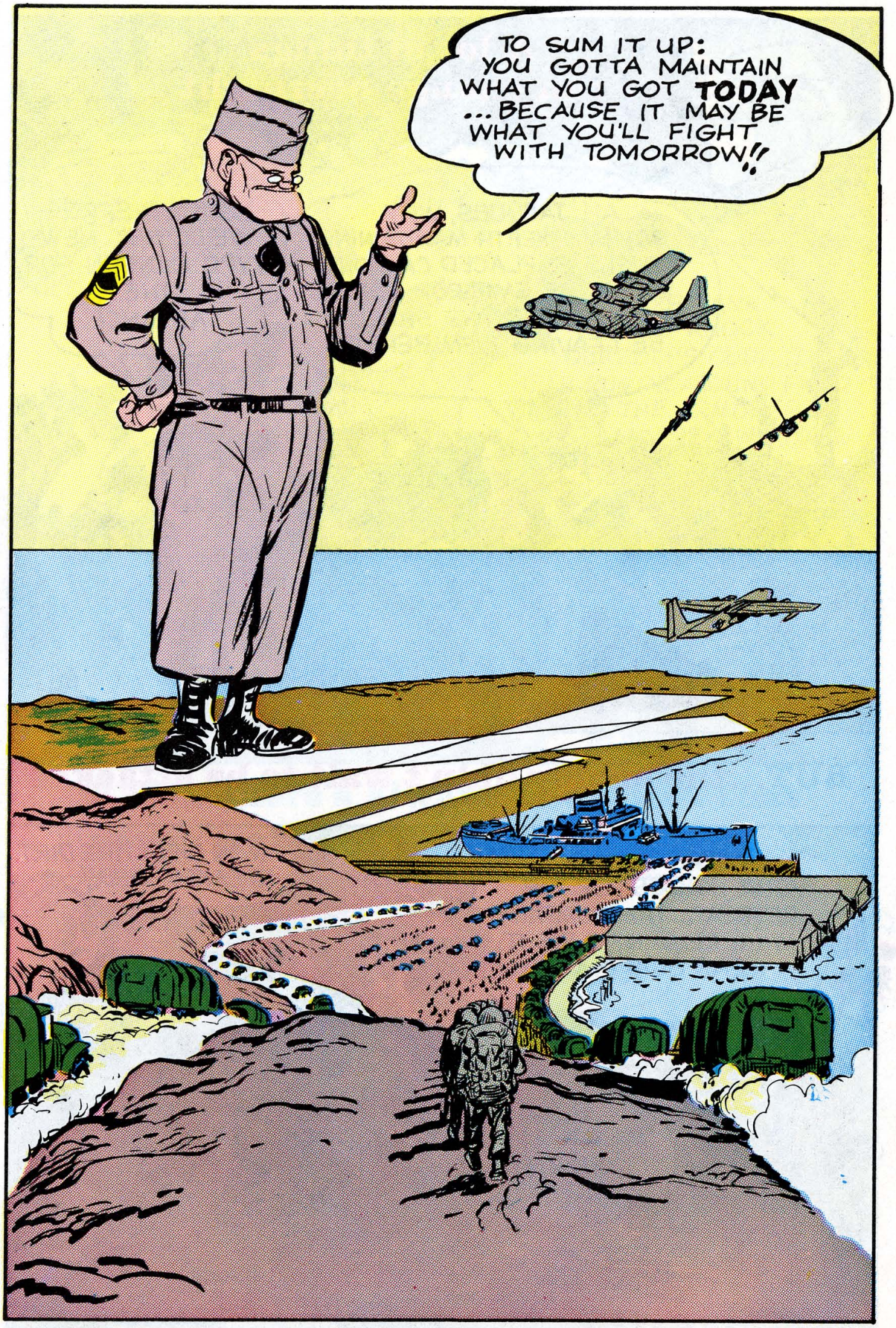
AND...there's always one outfit that never makes it...

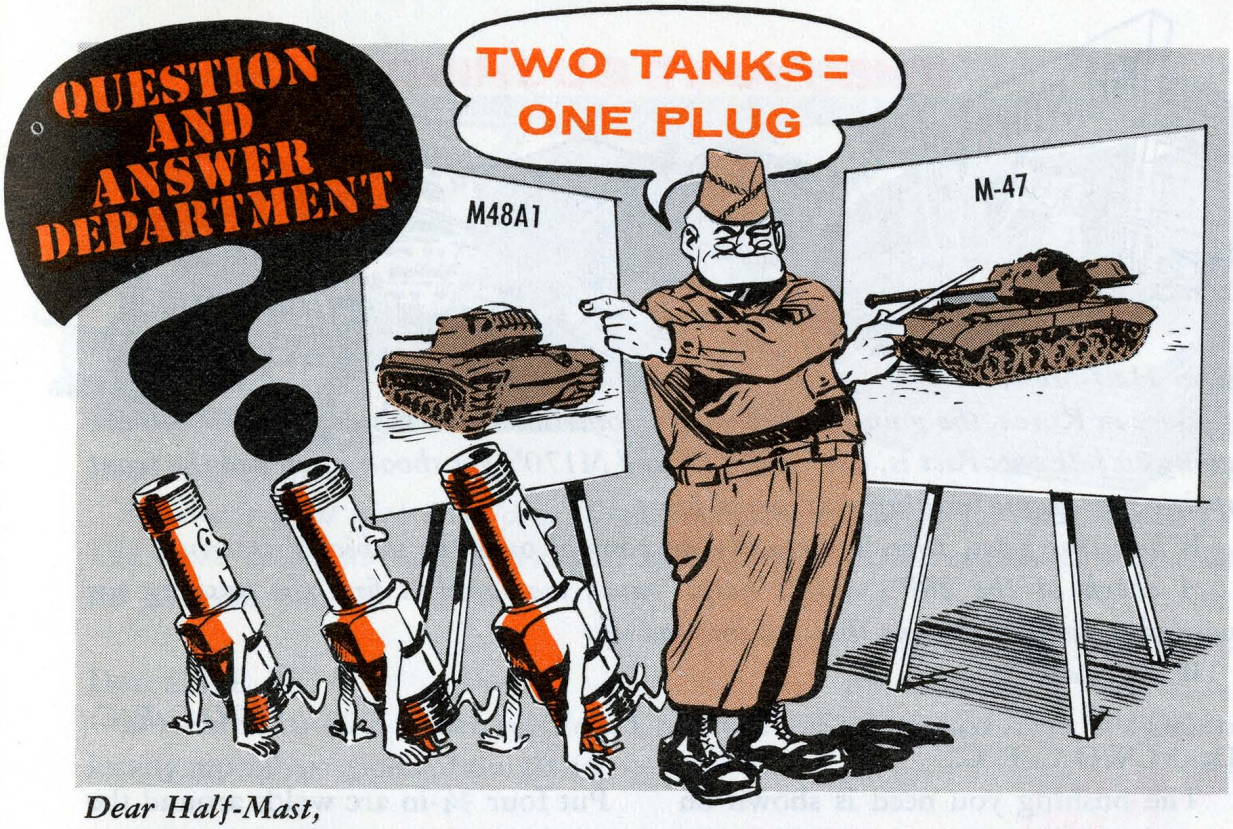




BUT... the enemy didn't wait to be attacked




TO SUM IT UP: YOU GOTTA MAINTAIN WHAT YOU GOT TODAY ...BECAUSE IT MAY BE WHAT YOU'LL FIGHT WITH TOMORROW!!



Dear Half-Mast,

M48A1 and the M47 tanks have AV-1790 series engines, but the TM's for the two tanks call for different spark plug gaps.

How come?

SFC I. G.

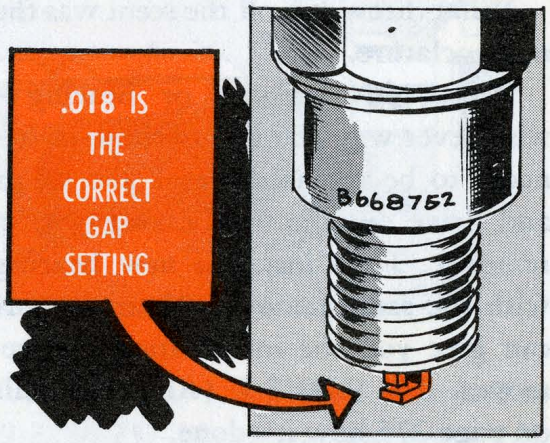
Dear SFC I. G.,

There is an old Army rule that can save you a lot of sweat: "When in doubt, follow the latest order."

TM 9-7012 was accurate when it was written, but TM 9-2350-200-12 is more recent, so that is your guide.

When TM 9-7012 was published (30 Aug 54) the correct gap setting for the plug then in the system was .011-.014. The correct gap setting for plugs in the AV-1790 series engines is now .017-.020, like TM 9-2350-200-12 (Oct 58) says. The spark plug now in the system for AV-1790 engines is Ord Part No. 8668752 and goes by the FSN of 2920-571-6731.

Actually, there is only one correct setting—.018.

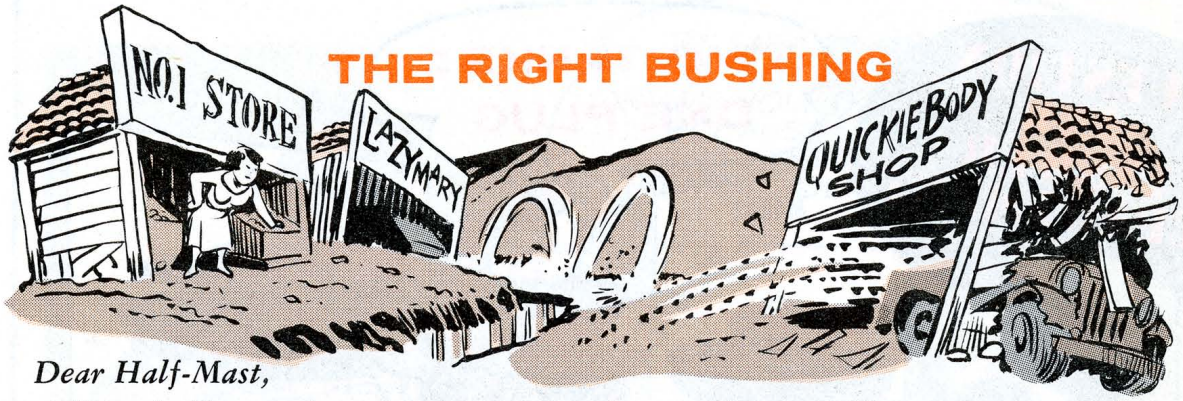


When you set the gap, use only a .018 gage and try to set it right on the money. If you gap it a little tighter (to .017), or a little wider (to .021), the engine will perform OK, but you cut down on your safety factor.

A good workman likes to get things right, and .018 is the right setting.

Half-Mast

THE RIGHT BUSHING



Dear Half-Mast,

Here in Korea, the going gets so rough sometimes you'll swear your teeth are going to fall out. Fact is, our M38A1's and M170's get shook up so bad the front spring rear frame bushing gets jarred loose.

When this goes, there's virtually no control over the vehicles' steering.

A check of the 20P's didn't help, 'cause we couldn't find the bushing we needed to replace the one that got bunged up.

What to do???

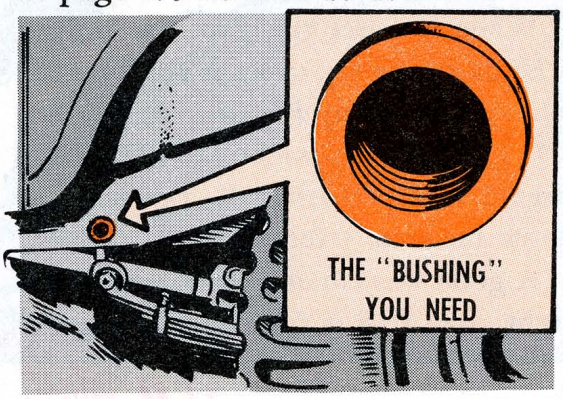
CWO C. F. C.

Dear CWO C. F. C.,

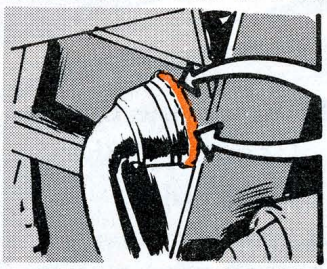
The bushing you need is shown on page 65, TM 9-2320-208-20P (Feb 59). It's Bearing: Bushing type, (front spring bracket), FSN 3120-368-4938.

What threw you off the scent was the nomenclature.

When this bushing or bearing—whichever way you like to think of it—needs to be replaced, break the welds and drive out the old bearing with a remover. Then install a new bearing with the same remover. Your support can give you the information and remover. TM 9-8015-2 (Aug 54) tells on page 275 how it's done.

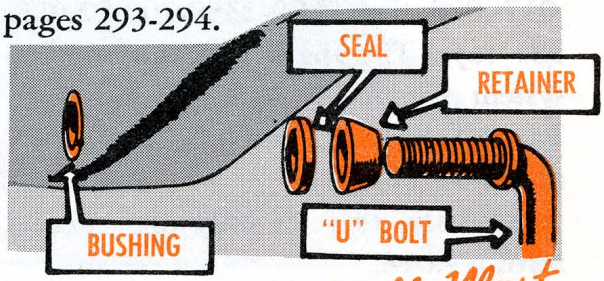


Put four ¾-in arc welds around the bearing on the **inner** side of the frame. Let the frame rail cool off between welds so as not to weaken it.



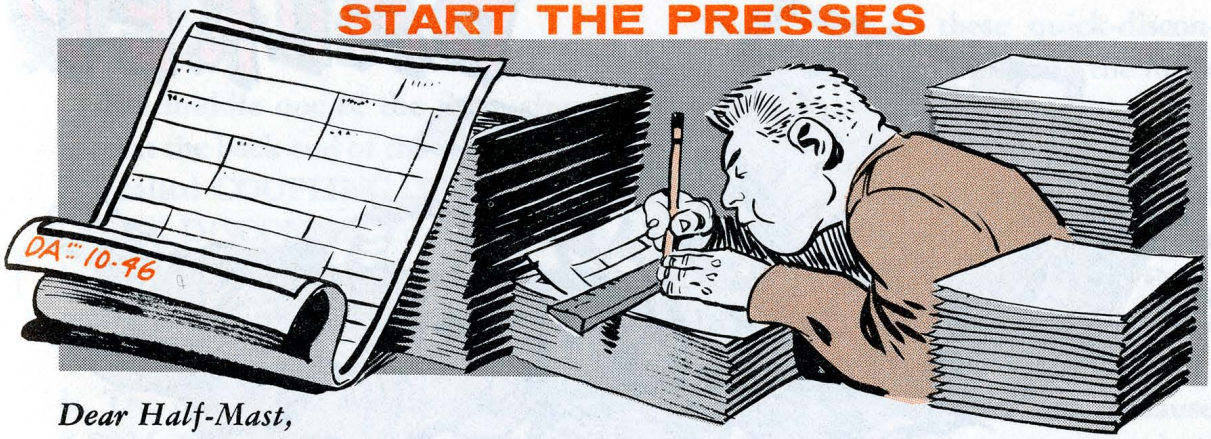
When you buckle up the spring shackles (U-bolts) don't forget to put on the seal and retainer. The rubber seal lets the unit get some play and'll help save the bushing from coming out.

You can get the dope on spring shackles in TM 9-8014 (Apr 55) on pages 293-294.



Half-Mast

START THE PRESSES



Dear Half-Mast,

So what's what with DA Form 10-46, the historical record for MHE and SPV? The word is it's no longer available through publication channels. Where do we go from here?

SFC R. M.

Dear SFC R. M.,

DA Form 10-46 is under revision. Until you get the revised form, it's OK to locally reproduce copies of the 10-46.

Half-Mast

NUMBER CHANGE

Dear Half-Mast,

The outfit I'm with has an M295A1 6-ton, 4-wheel semitrailer chassis. The servicing and publication data shows TM 9-2230-237-15 as the maintenance TM. I've checked in DA Pamphlet 310-4 and with my publication section but we can't find that publication listed anywhere.

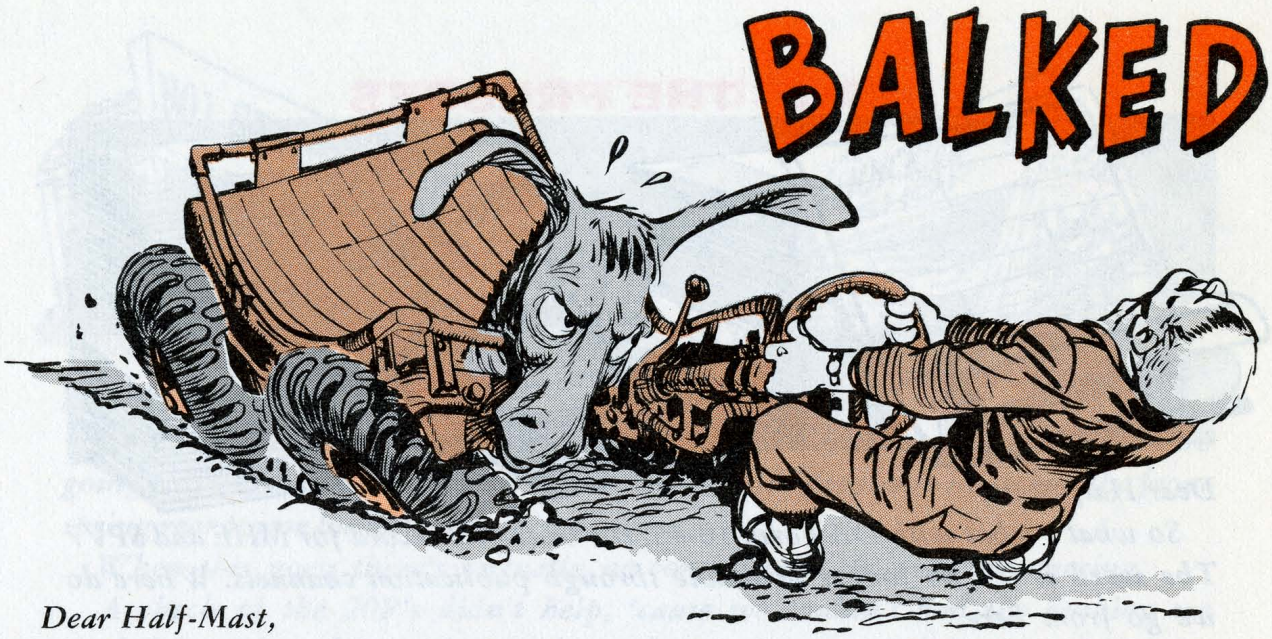
How do I get the TM?

MSgt J. R. C.

Dear MSgt J. R. C.,

Here's the story on the TM, Sarge. The one you've been trying to find has been superseded by TM 9-2330-238-14 (14 Oct 60). There's also a parts list and you can get it by asking for TM 9-2330-238-24P (Oct 60).

Half-Mast



Dear Half-Mast,

You've heard about the horse that stopped because a shoe was thrown because a nail was lost. Well, we've got a potfull of M274 Mules that're deadlined because of missing quick-disconnect couplers on the cable controls. We're hung up with due-outs and bounced requisitions, mostly because of arguments about nomenclature and our support unit's uncertainty about which tech service has 'em.

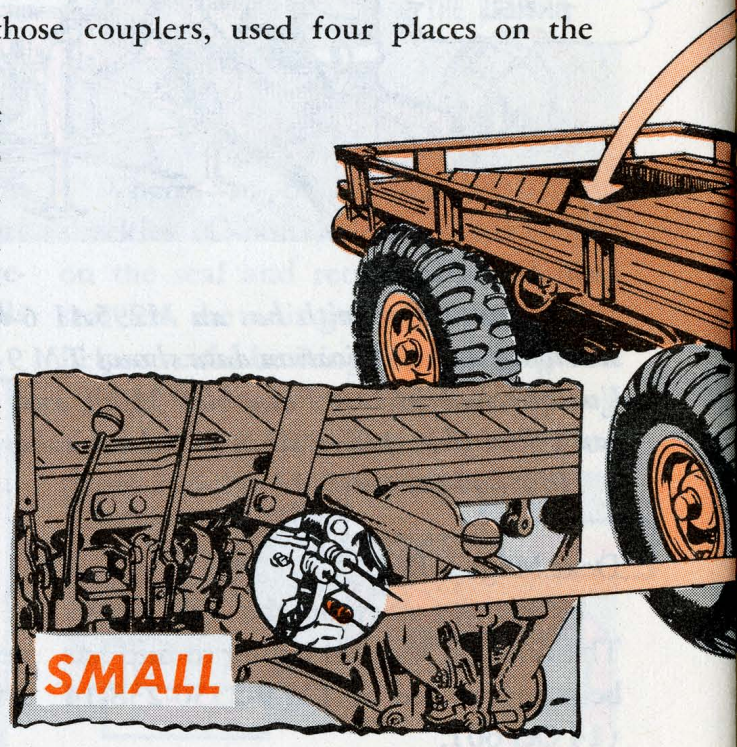
SFC P. L. M.

Dear Sergeant P. L. M.,

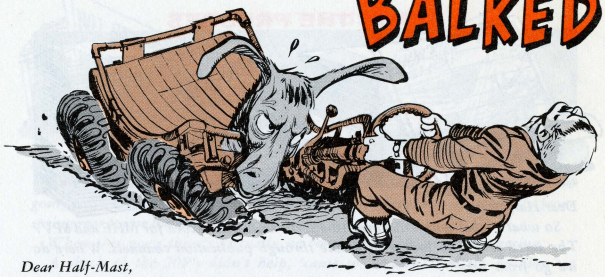
I looked into this whole deal, and I can really see why you're having trouble. Here's the story as good as I can make it out:

There are three different sizes of those couplers, used four places on the Mule.

The smallest is used on the throttle control cable. TM 9-2320-213-20P (26 Apr 60) calls this a high-mortality organizational maintenance item, and lists it as CONNECTOR, QUICK DISCONNECT: throttle control cable, FSN 2590-697-3704. Back in the old superseded TM 9-8034-20P (5 Aug 57) it was called CONNECTOR, throttle control cable. You get it from Ordnance. You may have a hard time making anybody believe this, tho, because you won't find it listed in either the SM 55-1 or SM 9-1 series. But, Ordnance it is, and you're entitled to it.



BALKED MULES



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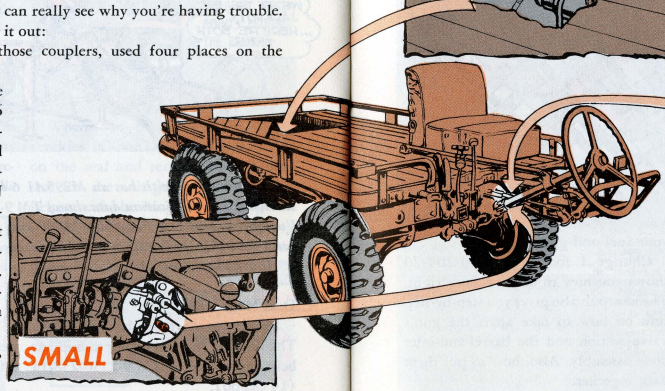
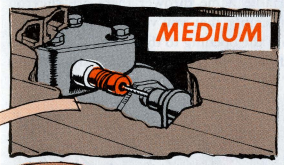
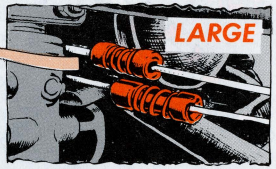


The middle one of the three sizes is used at the back end of the starter cable. It's called COUPLING, WIRE ROPE, QUICK DISCONNECT: steel; 1.44 in. lg of body, FSN 4030-698-6944. You're really in trouble here because the current —20P and —35P both fail to list it. The fact that it was in the old TM 9-8034-20P on page 8 as Quick Disconnect, Starter Cable, might help you some. You get this one from the Transportation Corps . . . it's SM 55-1-4000 (7 Jun 60) Part 1 Alphabetical List, page 72, Index Number 8400.



The largest of these quick-disconnects is used in two places on the Mule —on the clutch and brake cables. But you'll only find it listed as a high mortality organizational maintenance item for one application in the current —20P. It's shown there as COUPLING, WIRE ROPE, QUICK DISCONNECT: service brake, FSN 4030-698-3241. You may have trouble, tho, because your Ordnance support boys have it listed in their —35P as a quick-disconnect for the loom cable for **organizational** level on page 25 and again, just as a quick-disconnect, on page 26 as a **field maintenance** item. You get this one from the Transportation Corps. They list it in SM 55-1-4000 Part 1 Alphabetical List, page 72, Index Number 8390 as: FSN 4030-698-3241 COUPLING, WIRE ROPE, QUICK DISCONNECT: steel; cadmium plated; 2.380 in. lg of body.



Hope that helps you.

Some people have suggested drilling small holes in those quick-disconnects so you can lock 'em with a cotter pin —or even tape 'em. One way out of requisitioning difficulties is to hang on to the ones you've got—if you can.

Half-Mast

MULES

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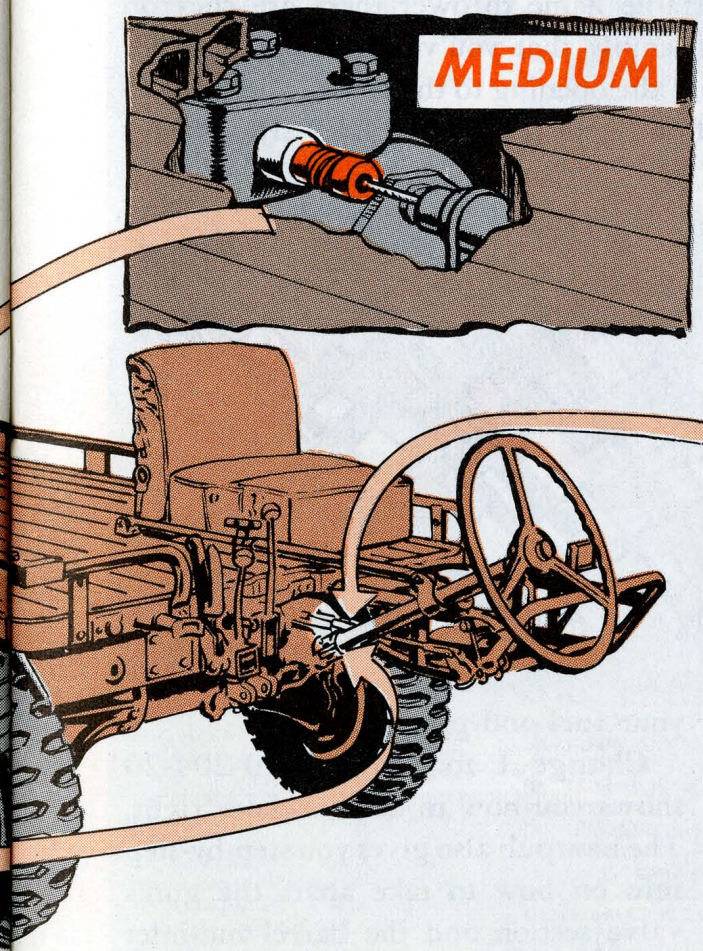

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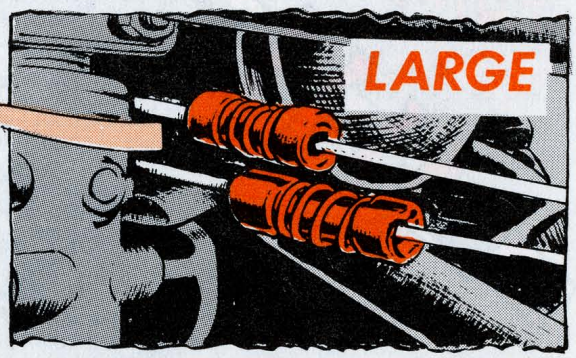

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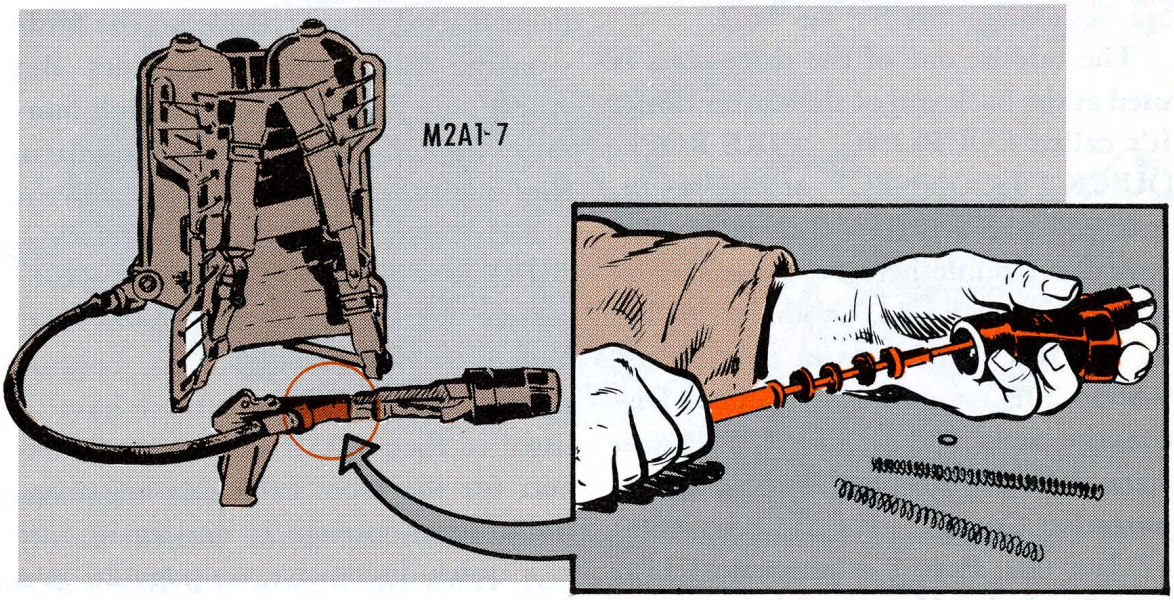
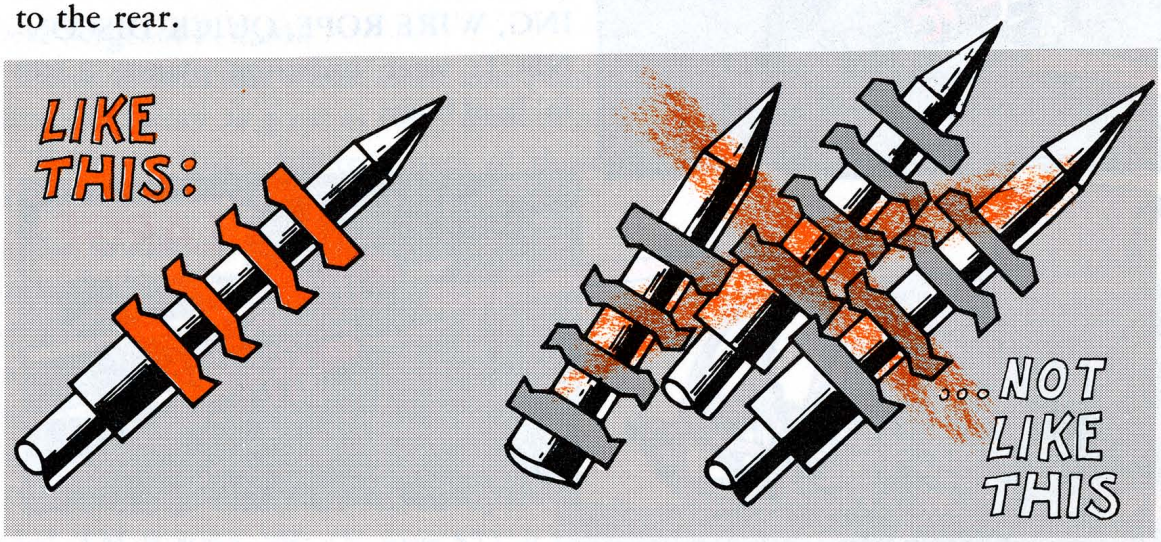
Some people have suggested drilling small holes in those quick-disconnects so you can lock 'em with a cotter pin —or even tape 'em. One way out of requisitioning difficulties is to hang on to the ones you've got—if you can.

Half-Mast

CHEVRONS ON RIGHT...?



In the M7 gun on your M2A1-7 portable flame thrower there are chevron packings in the barrel-and-inlet body assembly that you've gotta put together right . . . so they'll fit into each other with the opening to the front . . . not bucking each other. And the chamfered surface of the packing retainer always faces to the rear.



If you ever put 'em in wrong they'll work against each other, and you'll be in for trouble. The packings will expand and won't let the needle valve work right . . . it'll get locked in the retracted position. With the needle valve out of operation you'll not be able to fire a second blast . . . you'll lose all your fuel and pressure.

Change 1 to TM 3-1040-204-20 shows you how to do this chore right. The new pub also gives you step-by-step info on how to take apart the gun's valve section and the barrel-and-inlet body assembly. Also, how to put them back together.

A selected list of recent publications of interest to Organizational Maintenance Personnel. This is a list compiled from recent Adjutant General's Distribution Center Bulletins.

TECHNICAL MANUALS

TM 1-00-25-197 Feb Maint of Cot A & B Maint Trng A/C.

TM 1-1-1-309 Feb Ground Op, Serv, & Maint of A/C.

TM 1-1-1-648 Jan Sludge Control in All Recip Engines.

TM 1-1H-23D-1022 Mar Install Elbow Cooling Fan Gr Box Assy.

TM 1-1H-23D-1024 Mar Instal Trans Oil Filter.

TM 1-1H-34-1015 Mar Insp and Repl Main Rotor Damper Trunnion Assy Bolt and Washers.

TM 1-1H-37A-1045 Mar Insp Main Gear Box Oil Pump Assys.

TM 1-1H-37A-1065 Mar Instal New Shear Panel Doubler

TM 1-1L-20A-4-20P Feb.

TM 1-1L-20A-1027 Mar Mod of Hoisting Sling.

TM 1-1L-23D-1022 Mar Mod of Cabin Heater System.

TM 1-2J-T53-4 Feb Gas Turbine Eng T53-L-1, T53-L-1A and T53-L-1B (AVCO).

TM 1-2R-0480-1001 Mar Insp Cylinder Head Cracks 0-480-1 and IGSO-480A1A6 Eng.

TM 1-45A1-1-31 Feb Shimmy Damper, P/N A-13965 (Houdaille)

TM 1-5E6-3-1-41 Feb Resistance Thermometer Indicators and Bulbs.

TM 1-13A9-1-2 Feb A/C Protective Covers.

TM 1-1453-2-1 Feb Pneumatic, Type PK-2, One-Man Life Raft.

TM 5-2805-209-12 Feb Engine, Gas Wisconsin Mod MVF4D.

TM 5-2805-210-12 Feb Engine, Gas Contenental Mod FS244.

TM 5-3740-201-15 Mar Sprayer, Insecticide, 30 GPH, 25 PSI Curtis Auto Devices, Mod CAD 11080-1-A.

TM 5-3805-212-20 Mar Intrenching Machine Unit-Rig Mod 4262.

TM 5-3805-213-20 Feb Loader, Belt Type: Adams Divn, Letourneau Westinghouse Mod 30, Traveloader.

TM 5-3810-224-12P Jan Crane-Shavel, Crawler MTD, ½ Ton Cap 1½ Cu Yd Baldwin Lima-Hamilton Mod 604.

TM 5-3825-211-20 Feb Sweeper, Rotary S-P Wayne Mod 200V.

TM 5-3895-217-10 Jan Distributor Liq Bit Mat Seaman-Gunnison Mod MTED.

TM 5-4310-231-10 Mar Comp Recip Air, 15 CFM, 3500 PSI Joy Mod 415HEP2.

TM 5-4320-200-25P Feb Pump Centrifugal: 1½ in MIL-P-14514A (CE) Gas Driven, Less Eng.

TM 5-4320-202-20P Mar Pump, Cent: Gas Drvn: Base Mtd: 2 In, 166 GPM, 25 Ft Head Carver Mod K203.

TM 5-4320-213-12 Feb Pump, Cent Pet; Gas Driven, Allis Chalmers Mod 501-112-520.

TM 5-4320-215-12 Mar Pump, Cent: 4 In 500 GPM, 30 Ft Head Carver Mod K400S.

TM 5-4320-218-15 Mar Pump, Centrifugal (Gorman Rupp Mod 04A12-MVG4D).

TM 5-4610-200-20P Feb Tools List, Water Pur Unit 600 GPH Permutit Mod 600.

TM 5-6115-227-20P Feb Gen Set, 60KW, Szekely Mod 501.

TM 5-6115-232-20 Feb Gen Set, 10KW Hol-Gar Mod CE-105-AC/WK8.

TM 5-6115-256-15 Mar Generator Set, Gas Eng 1.5 KW, AC, 120V Sommer Elec MDL SG-1500.

TM 5-6115-270-10 Mar Generator Set, Gas Eng 3KW, AC, 120 V Hollingsworth Mod JHGW3B.

TM 5-6675-202-15 Feb Tellurometer, Master Unit Tellurometer (Pty) Ltd. Mod MA1/CW/MV.

TM 5-6675-204-25P Jan Geodimeter, Map and Surv Svenska AB Gas Accumulator Mod Nasm-3.

TM 9-1005-237-14P Feb Bayonet-Knives M4, M5, M5A1, M6 and Scabbard M8A1.

TM 9-1015-200-20P Feb Repair Parts and 81-MM Inf Mortar W/C M29 Series on Mt M23 Series.

TM 9-1430-251-10/3 Feb Opeartar's Manual—Assy and Emplace HiPAR (HERC).

TM 9-1430-252-20/2 Feb Radar Course Directing Central Herc.

TM 9-1430-253-20/2 Feb Troubleshooting Radar Course Dir Central Herc.

TM 9-2320-222-20 Mar Recovery Vehicle, M88 (T88).

TM 9-2330-235-24P Feb Trailer: 2-ton, 2-wheel XM390.

TM 9-2330-208-24P Feb Semitrailer, Tank: Gasoline, 12-Ton, M131 and M131A1.

TM 9-2330-222-24P Mar Van: Refr, 7½-Ton, M349A1.

TM 9-2330-240-24P Feb Trailer, Van: XM460 5-Ton.

TM 9-2330-245-14 Dec Trailer: 1½ Ton M103A1 and M103A3.

TM10-206 Mar Kitchen Cars, Equipment, Etc.

TM 10-500-10A-8, -10, & -11 Feb Rigging Radio Sets on M38A1.

TM 10-3930-223-20 Feb Lift Fork, Rough Terrain 10,000-Pound MHE 165.

TM 10-7360-203-15 Feb Field Cooking Outfit, Small Detachment.

TM 11-4940-205-12P Mar Electronic Shop, Trailer Mtd AN/MSM-34.

TM 11-5805-239-12P Mar Power Supply PP-1209/FG; PP-1209A/FG.

TM 11-5805-285-15 Feb Terminal, Telegraph-Telephone AN/MCC-6.

TM 11-5805-292-12 Feb Telephone AN/FTC-26.

TM 11-5805-320-12P Feb Telephone Set TA-291/FT.

TM 11-5820-312-12P Feb Antenna Filter OA-1391/GRC.

TM 11-5820-337-20P Mar Receiver-Transmitter RT-70/GRC, RT-70A/GRC,RT-70B/GRC.

TM 11-5820-358-20 Feb Radio Receiver R-390A/URR.

TM 11-5821-212-20P Mar Direction Finder, AN/TRD-3.

TM 11-5895-204-20 Feb Sound Locating Set GR-6-A and Sound Ranging Set AN/TNS-3.

TM 11-5895-222-15 Feb Teletypewriter Operations Central AN/MGC-19.

TM 11-5895-225-15 Feb Patching Communication SB-675/MSC.

TM 11-5895-251-12 Feb Radio Frequency ID-777/USD-1.

TM 11-5965-236-12P Mar Headset-Microphone H-66/U.

TM 11-5965-247-12P Mar Headset, Electrical H-43B/U.

TM 11-5985-230-12P Mar Mast Base AB-15/GR.

TM 11-6130-224-20P Feb Power Supply PP-351/U.

TM 11-6615-218-12P Feb Control, Roll and Pitch, Indicator USAF Type K-4B.

TM 11-6625-316-20P Mar Test Sets, Electron Tube TV-2/U, TV-2A/U andTV-2B/U.

TM 11-6625-357-20P Mar Test Set, Computer TS-909/PPM.

TM 11-6625-383-15 Feb Wattmeter AN/USM-83.

TM 11-6625-384-12 & -20P Mar Kit, Electronic Equipment MK-427/ARC.

TM 11-6625-405-20P Mar Power Supply PP-2234/U.

TM 11-6625-418-12 Mar Manual Test Set, Radio AN/ARM-51.

TM 11-6660-206-10 Feb Rawin Sets AN/GMD-1A and AN/GMD-1B.

TM 11-6740-206-20 Mar Driers, Photographic Print EL-5(2), EL-5(3), and PH-679B/U.

TM 11-7450-200-20P Mar Recorder-Reproducer Set, Sound AN/TNH-8.

LUBRICATION ORDER

LO 5-3740-201-15 Feb Sprayer, Insect Curtis Automotive Devices Mod CAD 11080-1-A.

LO 5-4310-221-12 Mar Comp, Rot: Air; 125 CFM 100 PSI, Ingersoll-Rand Mod GER-125.

LO 5-4310-231-20 Feb Comp, Recip: Air; Trailer Mtd; Elec Driven; 15 CFM; 3500 PSI Joy Mod 415 HEP-2.

LO 5-4320-215-12 Feb Pump, Cent: Fresh Water; Gas Driven; Carver Mod K400S.

LO 5-4610-200-12 Feb Water Purification Unit Permutit Mod 600.

LO 5-4610-203-12 Feb Water Purification Unit Met-Pro Mod 3000-2700.

LO 5-4610-204-12 Jan Water Pur Unit, 1500 GPH MET-Pro Mod 1500-2600.

LO 5-6115-236-15 Mar Generator Set, Gas Eng: 2 KW, DC, 12V, US Motors Mod 2-US-17421, 2-US-18086.

LO 5-6115-270-20 Mar Generator Set, 3 KW AC, 120 V, Hollingsworth Mod JHGW3B.

LO 5-6115-293-12 Feb Generator Set, Diesel Engine: Prec Power; 100 KW, AC Detroit Diesel Mdl 6910A.

LO 5-6115-294-13 Feb Gen Set, 30KW Airesearch Mod GTG-E70-2.

LO 10-3930-223-20 Jan Truck, Fork Lift, Rough Terrain, 10,000 Lb.

LO 10-4110-205-20 Feb Refr Units, Thermo-King Mod Q9 and QSA.

LO 10-4930-203-12 Dec Pump, Cent, 350-GPM, Wisc Gas Eng, Mod MVG4D.

LO 10-7360-201-20-1 Feb Bakery Plant.

LO 10-7360-201-20-2, -3, -4, -5 Feb Bakery Plant, Mobile Dough Mixing & Makeup.

LO 55-1940-204-12 Feb Design 2001 Boat.

LO 55-2210-212-20 Feb Loco, Dsl-Elec, De Lavergne Engine, Mod VO-78, 1000 HP, Baldwin Lima Hamilton Corp.

LO 55-2815-206-12 Feb Engine, Marine Detroit Diesel Models 6071A and 6072A.

LO 55-3950-210-12 Mar Cargo Winch.

DA FORMS

DA Form 9-28 Mar Hercules Weekly Check Sheet.

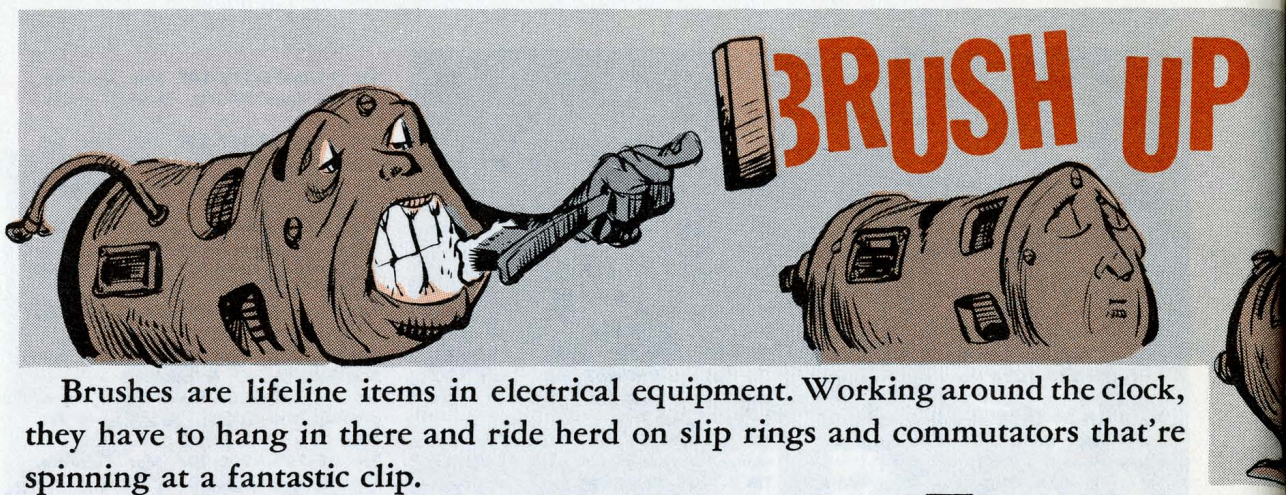
DA Form 9-29 Mar Hercules Monthly Check Sheet.

DA Form 9-35 Mar Herc Weekly Check Sheet.

DA Form 9-36 Mar Herc Monthly Check Sheet.

DA Form 9-95 Mar Herc Daily Check Sheet.

DA Form 9-97 Mar Herc Monthly Check Sheet.



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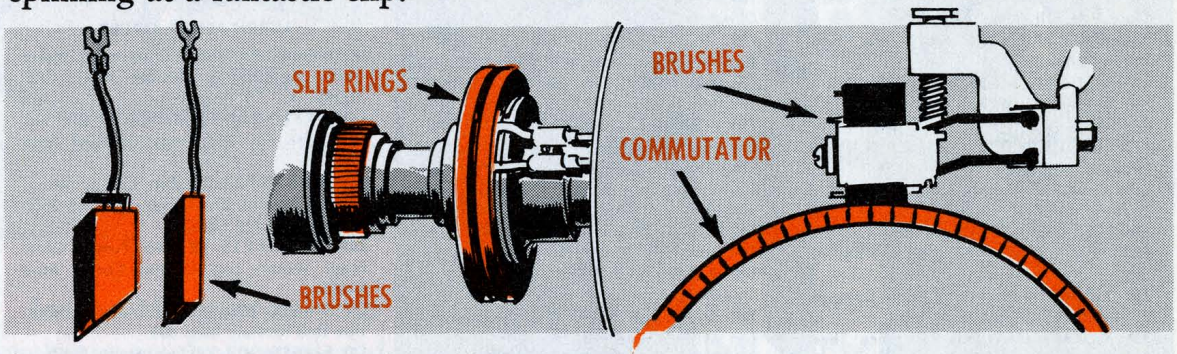


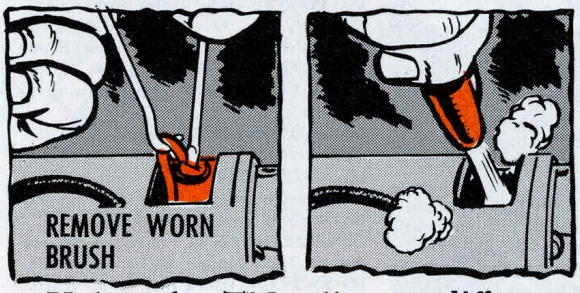
Without that solid, smooth brush contact, your equipment couldn't pull tail feathers from a pigeon.

This is why you find inspection, cleaning, adjusting and replacing of brushes high on the list of Q services for generators, alternators and motors.

In fact you don't even wait for scheduled services whenever sparking, chattering, or weak voltage output warns you there's trouble brewing at the brushes.

Here're some common causes of brush trouble, and how you can keep 'em from deadlining your equipment:

WORN BRUSHES NEED REPLACING



Unless the TM tells you different, you replace brushes worn down to half their original length. Clean the holder and blow out dirt before putting in the new brush. Never use high air pressure for blowing out dirt—25 to 35 PSI is enough.

NEW BRUSHES NEED FITTING

New brushes are fitted to the commutator curve by sanding with a medium grade sandpaper. Place a strip of 00 grade sandpaper under the brush, with the rough side toward the brush. Then put light pressure on top of the brush with one hand, while pulling the sandpaper through in the direction that the commutator or slip ring turns. Repeat sanding in the same direction until

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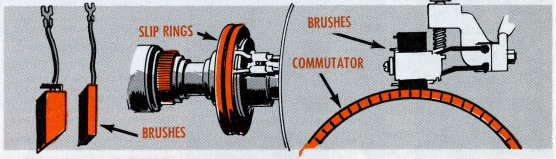

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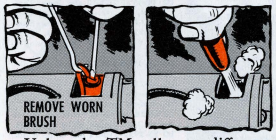

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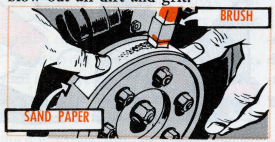
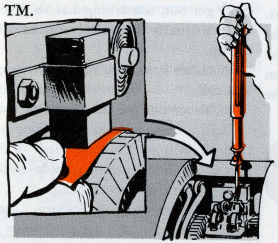
ON BRUSHES

the brush face fits the curve. Be sure to blow out all dirt and grit.



SPRING TENSION NOT RIGHT

Test **all** brushes, even those in hard-to-reach places, to be sure each spring is tensed to match your TM requirement. Use a spring scale hookup, and a piece of paper placed between the brush and the commutator. Check the tension on the scale when the paper can be freely moved, and adjust the tension until it matches the amount required by the TM.



BRUSHES BIND IN HOLDERS

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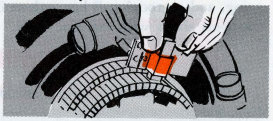
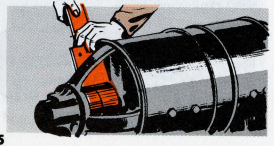


STREAKED "SKIN"

A contact film, or "skin", is formed by brushes riding on the commutators and slip rings. This "skin" smooths contact and reduces wear on the brushes. Streaks in the "skin" indicate bare spots or high spots, which can be leveled off with a cleaning paddle. You cover the cleaning paddle with canvas or 00 sandpaper—**never** with emery paper—and press lightly a few seconds at a time to clear up streaks.



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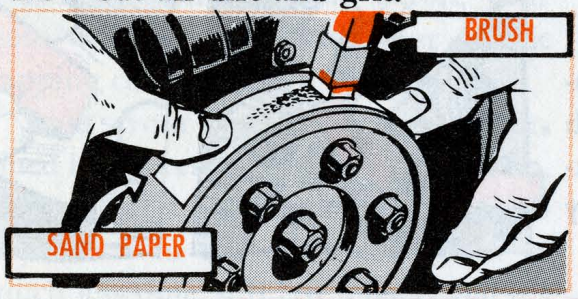

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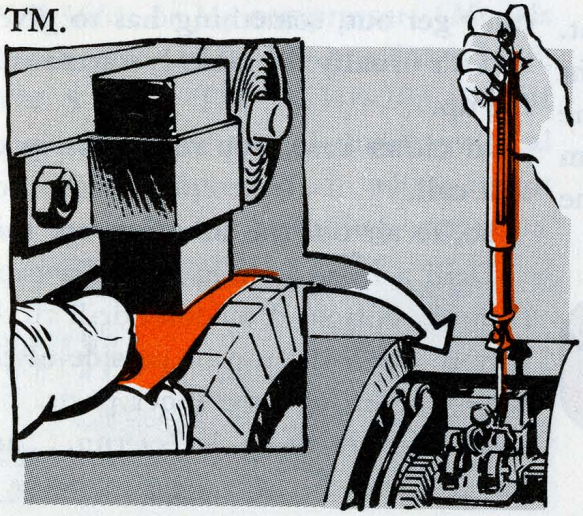

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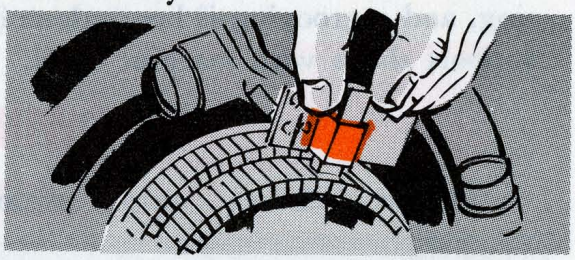

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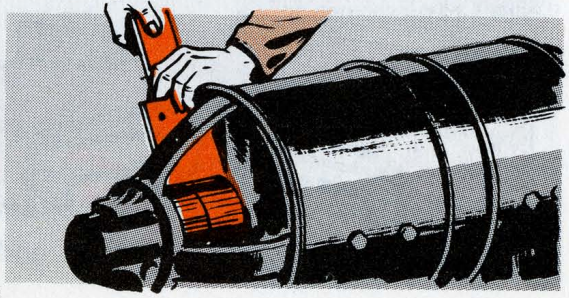
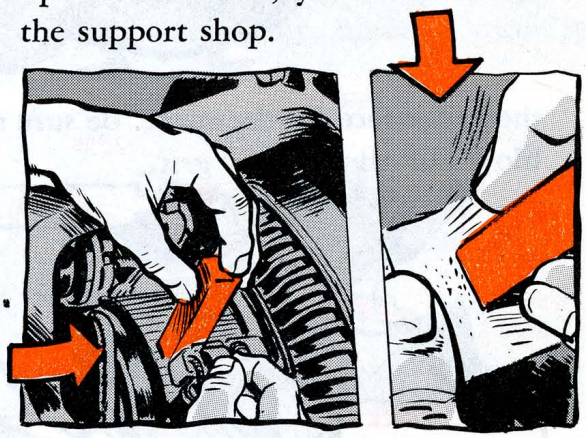


OIL SMEARS

Oil soaks into the brush, hardens it, and causes friction that cuts up the surface "skin." Oil-hardened brushes have to be replaced. Then you clean the oil smear from the commutator or slip ring with the cleaning paddle, and check nearby bearings for excess oil, to prevent more trouble with smears.

COPPER PICKING ON BRUSH FACE

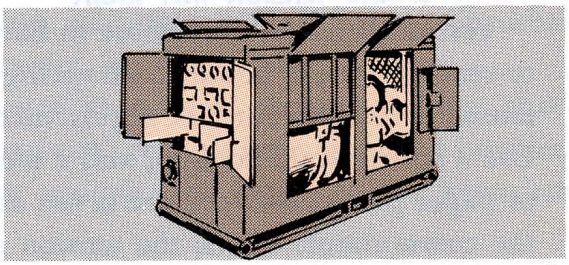
When the brush picks up bits of copper from the commutator, it cuts through the contact "skin." Try refacing the brush with 00 sandpaper, and cleaning the commutator with a cleaning paddle. If copper still builds up on the brush, you have work for the support shop.



FLAT BARS, HIGH BARS, HIGH MICA

Some small roughness caused by commutator wear can be smoothed out with hand tools. But resurfacing, undercutting, and regrooving is better done by support shops with machine tools.

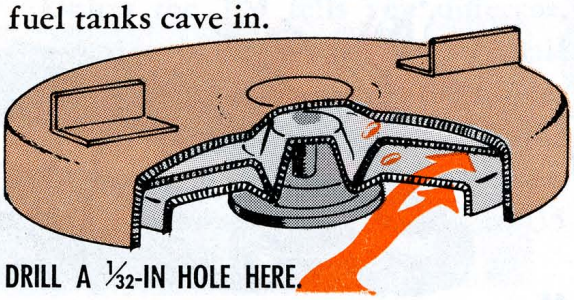
SHORT-WINDED GENERATORS



Wheeze . . . choke . . . gasp . . . swoom . . . crunch.

That could be your 10-KW Hol-Gar generator (Model CE-105-AC/WK8) suffering from an air-locked fuel tank. Which leads directly to a collapsed tank, split seams, or a tank swollen out of shape.

The trouble comes from the standard fuel caps issued with this equipment. The fuel tanks just can't breathe right —even with the fording valve in the OPEN position. This sets up a vacuum . . . choke . . . sob . . . gasp . . . and the fuel tanks cave in.



DRILL A 1/32-IN HOLE HERE.

On the other hand, when the tank warms up from the sun, etc., the fuel and trapped air expand. Since the air can't get out, something has to give—and it's usually the tank. It starts swelling up.

In either case, you've got a rig on sick call.

So, to air out the situation, try this:

Drill a 1/32-in hole in the filler cap—from the bottom. You don't drill all the way through the top or outside of the cap—just through the inner parts.

Then, start 'er up, let 'er run. . . and let 'er breathe.

NO WOES WITH NEW HOSE

Like the man said when they wheeled him into the operating room: "Well, it won't be long now."

And it won't be long before your hose woes are over with your missile capping compressors.

Soon's your present stock of rubber-lined high pressure air hoses is used up, you can get a new, improved hose. It'll dry down to the right dew point in much less time, it'll last longer, and it's rated to handle up to 6,000 PSI.

Here's what you want: Hose Assembly, FSN 4310-767-1633.

With Daveys and Joys, you'll also need two Adapters, FSN 4730-523-1350 (not needed on Joy 80HGC2-MSI and 80HGC3-MSI, or Clark Bros. Models H06-4C and H06-5C).

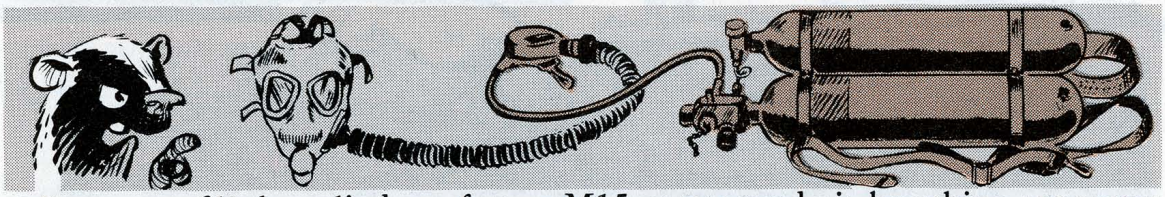
With Rixs, you'll need two Adapters, FSN 4730-523-1353.

And to connect two lengths of the new 25-ft hose, you'll need an Adapter, FSN 4730-523-1351.

Your support unit will requisition 'em all direct from:

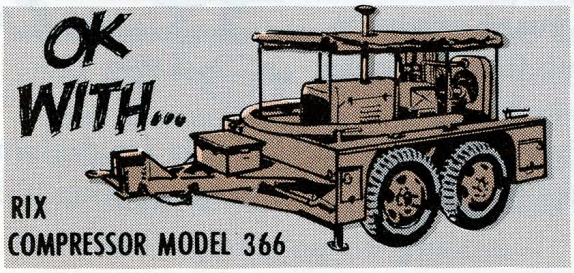
USA ENGINEER MAINTENANCE CENTER
52 STARLING STREET
COLUMBUS, OHIO

HOLD IT... MISSILE-MAN!

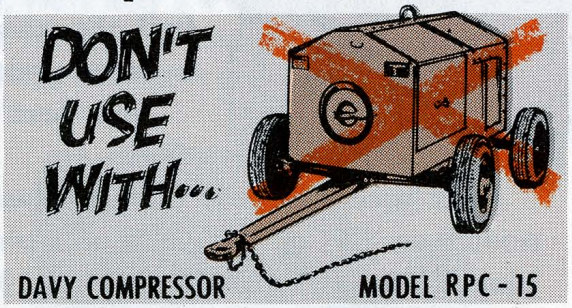


Be sure to fill the cylinders of your M15 compressed air breathing apparatus according to the info in para 27, Change 2 (2 Sept 59) to TM 3-310-15.

That is, use a Rix compressor (Model XM 366), or Joy compressors (Models 15H1 or 15 HGP5-MS-1) (TM 5-5408, TM 5-5411, TM 5-4310-203-10). If you don't have any of these, get local purchase compressed air which is put up especially for breathing apparatus.

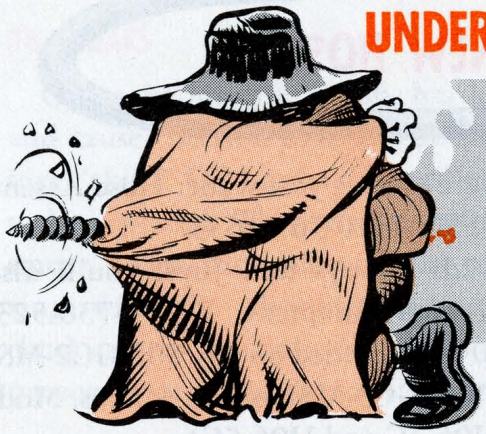


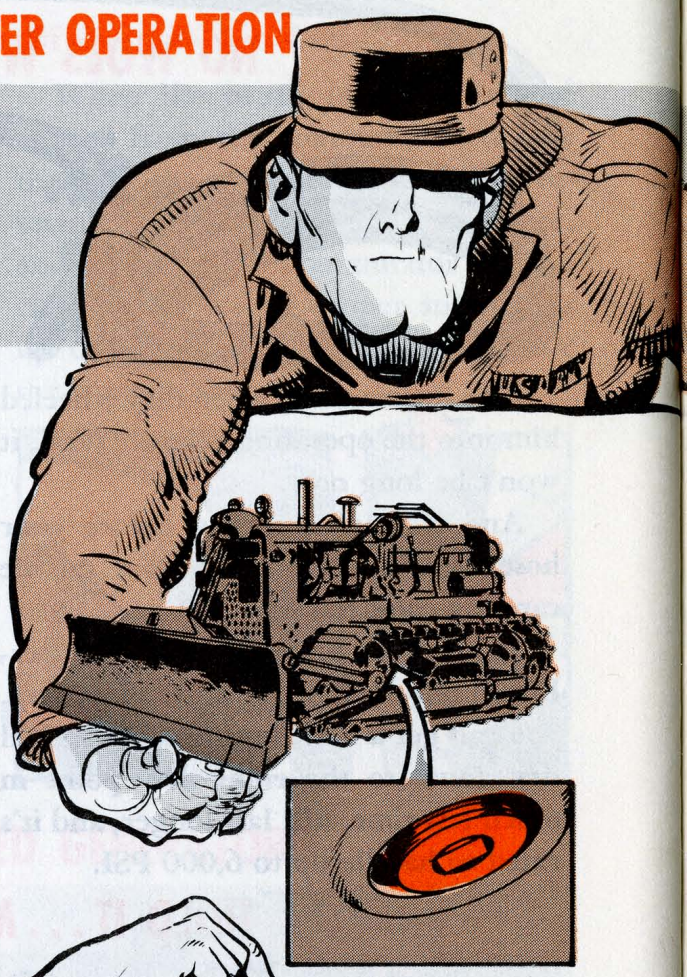
For now, keep the M15 cylinders away from the Davey RPC-15, 3500-PSI compressor.



And, remember the M23 carbon monoxide detector kit tests air for carbon monoxide contamination only.

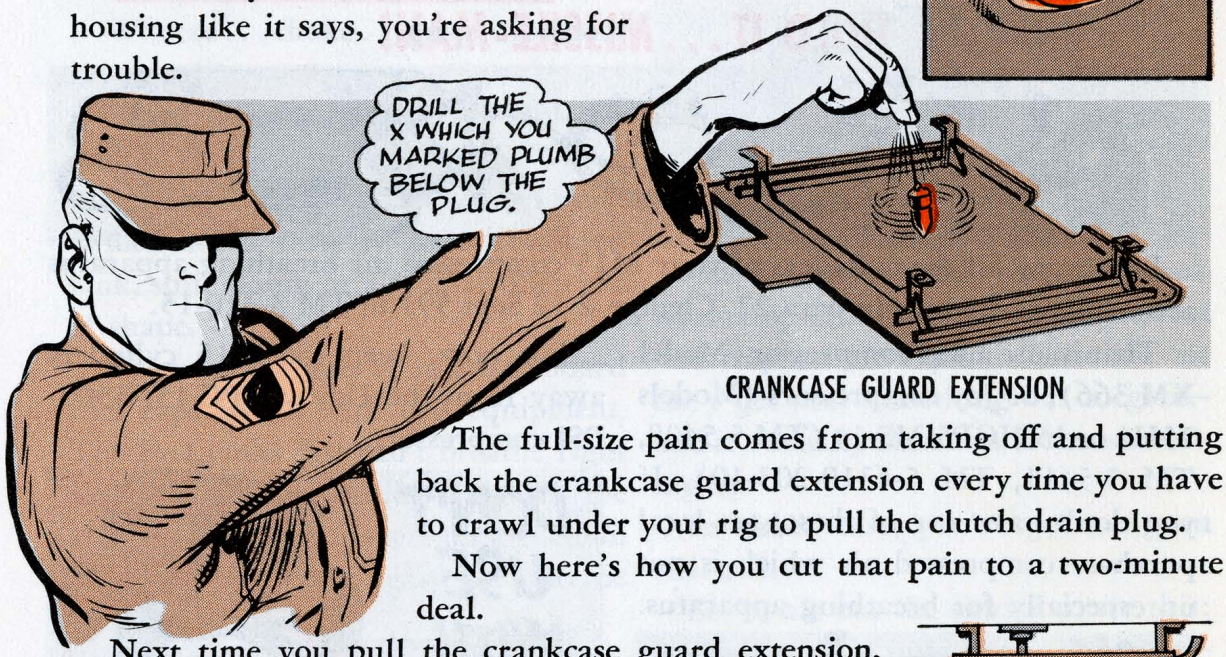
UNDERCOVER OPERATION





On your IHC TD18 and TD20 tractors, there's one undercover job that can be a full-size pain every 50 operating hours. That is, unless you cut it down to a two-minute deal with a well-placed drill hole.

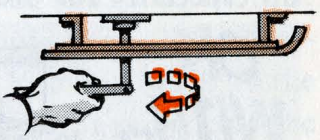
This undercover job is pulling the drain plug under the engine clutch, according to LO 5-2410-200-20-1 (23 Feb 60). If you don't drain the clutch housing like it says, you're asking for trouble.



CRANKCASE GUARD EXTENSION

The full-size pain comes from taking off and putting back the crankcase guard extension every time you have to crawl under your rig to pull the clutch drain plug.

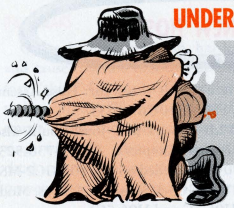
Now here's how you cut that pain to a two-minute deal.

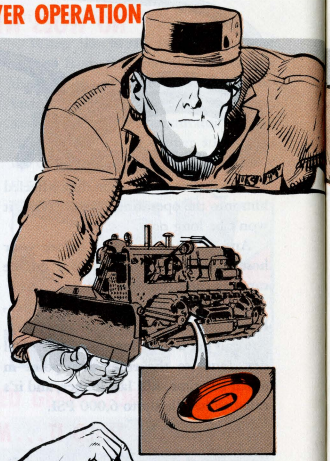


Next time you pull the crankcase guard extension, scratch an "X" on the guard on a plumb line below the plug. Then drill that "X" with a 1⅜-in hole.

You've got it made from now on. Every time "L" service calls for draining the clutch case, it's no sweat to spear the plug with a ½-in drive on your 10-in extension tool.

UNDERCOVER OPERATION





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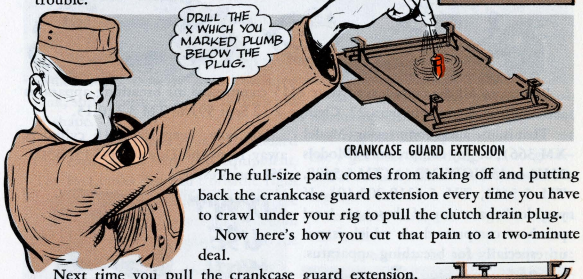

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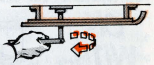

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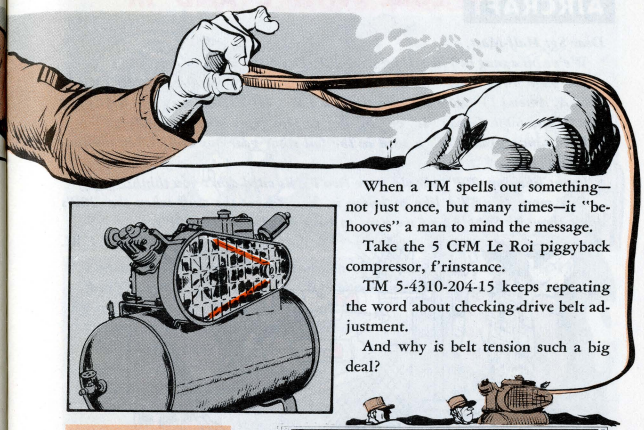
BELT IT RIGHT!



When a TM spells out something—not just once, but many times—it "behooves" a man to mind the message.

Take the 5 CFM Le Roi piggyback compressor, f'rinstance.

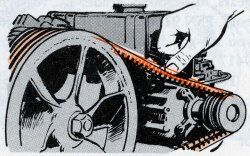
TM 5-4310-204-15 keeps repeating the word about checking drive belt adjustment.

And why is belt tension such a big deal?

1. Because **slipping** drive belts won't build 175 PSI.

2. Because **overtight** drive belts put a bind on the crankshaft of the 8B, Briggs and Stratton engine that drives the compressor. With a bind on the crankshaft, you're lucky if it only stalls the engine at about 120 PSI. If you're not lucky, the crankshaft will bend and break—taking the main bearing with it to the scrap pile.

It takes only seconds to thumb-test adjustment on these V-belts. And it takes only minutes to loosen the four engine mounting bolts and adjust the tension so that it's not too loose or too tight. Make it just enough to keep the belt from slipping on the pulleys.



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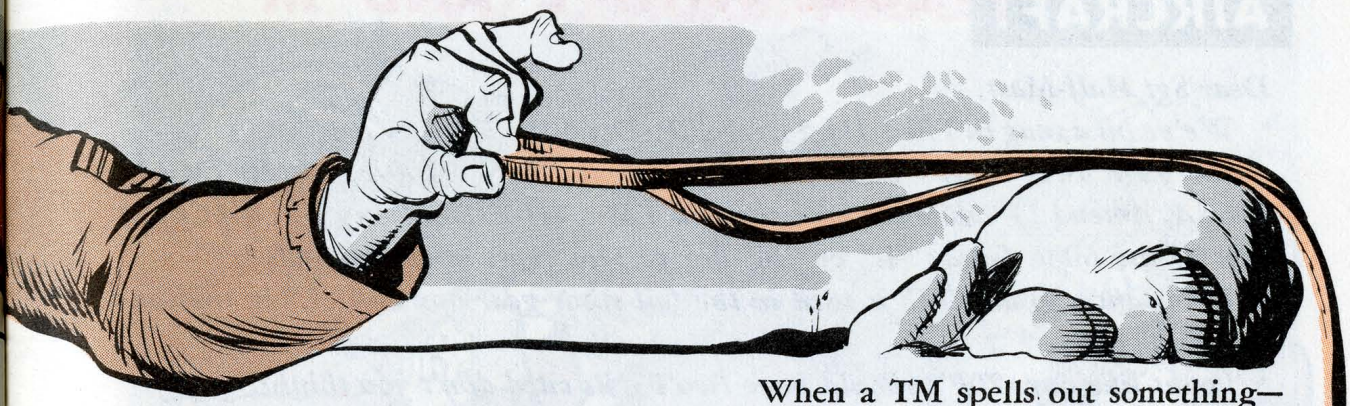

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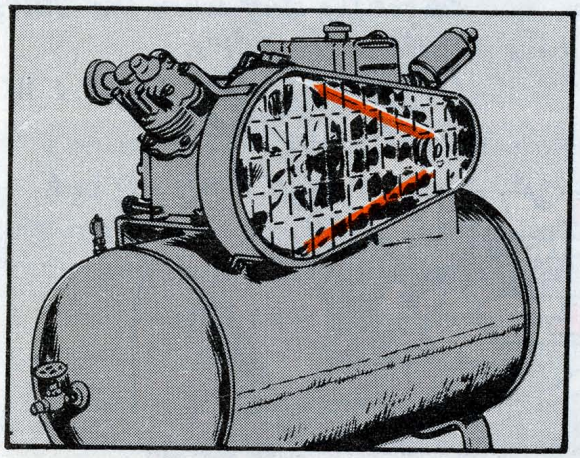

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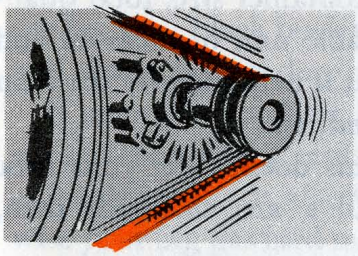

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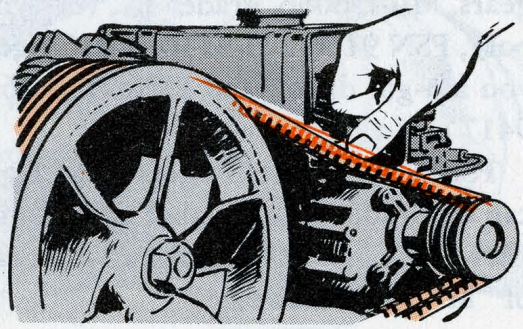


ARMY AIRCRAFT

LUBE WITH "L" AND "M"

Dear Sgt Half-Mast,

We've hit a snag in TM 1-1H-23A-4-20P (Dec 60).

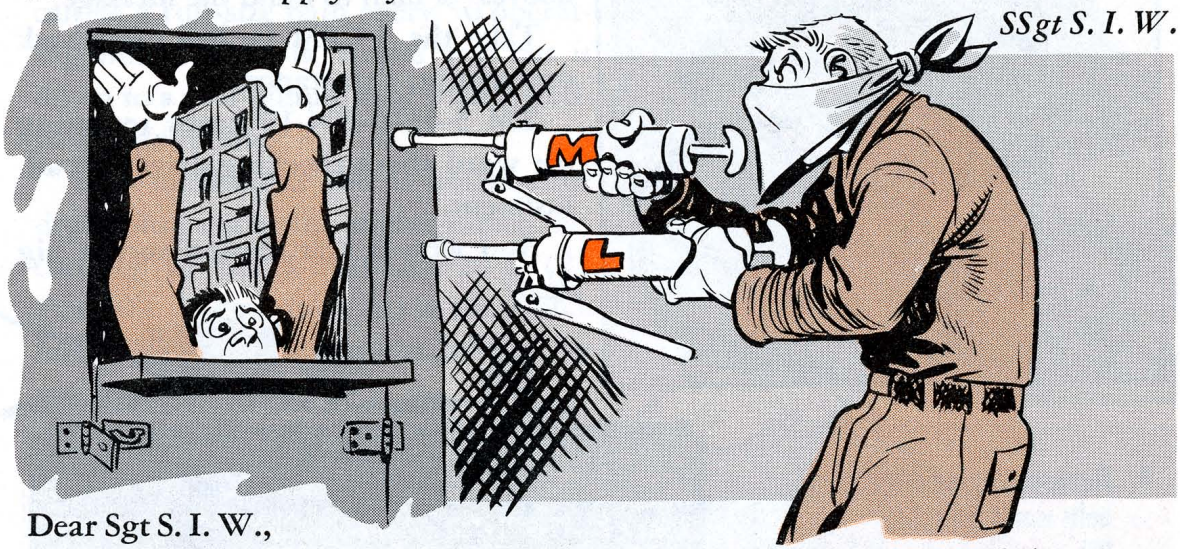
On page 141, it lists Lube Oil, Gear, under FSN 9150-223-4130 (Mil-L-6086A, Amend 1), while the lube chart in TM 1-1H-23D-2 (May '59, W/Chgs.) says to use 6086 Grade "L" or "M" for certain gears in our H23D's.

F'rinstance, grade "M" is used in the tail rotor gear box and "L" in the control rotor cuffs.

Looks like our -20P's should have two FSN's cited don't you think?

One more thing I'd like to know is, how to get the stuff when the -20P's don't show it? Supply says we have to have it listed in the -20P's.

SSgt S. I. W.



Dear Sgt S. I. W.,

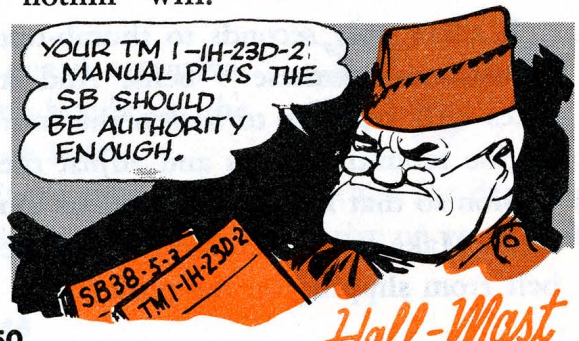
Yep, the -20P's should give with four separate FSN's for the gear oil for your Raven. You'll find the stuff listed in SB 38-5-3, page 20. A further reference that'll get you more variety in carton sizes is SM 10-1-C4-1 (Sept '59), page 49.

For LUBE OIL, GEARS, aircraft gears, Mil-L-6086, grade "L", (no symbol), FSN 9150-223-4116 (QMC) gets you a 5-gal drum; and FSN 9150-265-9417 gets a 1-gal can.

FSN 9150-223-4130 gets you a 1-gal can of Grade "M" (symbol OGR), and FSN 9150-240-2235 brings a 1-pint can of "M" when desired.

When orderin' the stuff, be sure to include: the FSN . . . natch, the Spec number, the container size, total quantity in applicable unit of measure and other info that'll help identify the item . . . **where used**, etc.

Sarge, if this doesn't get your lube until the -20P's are changed, then, nothin' will.



Half-Mast

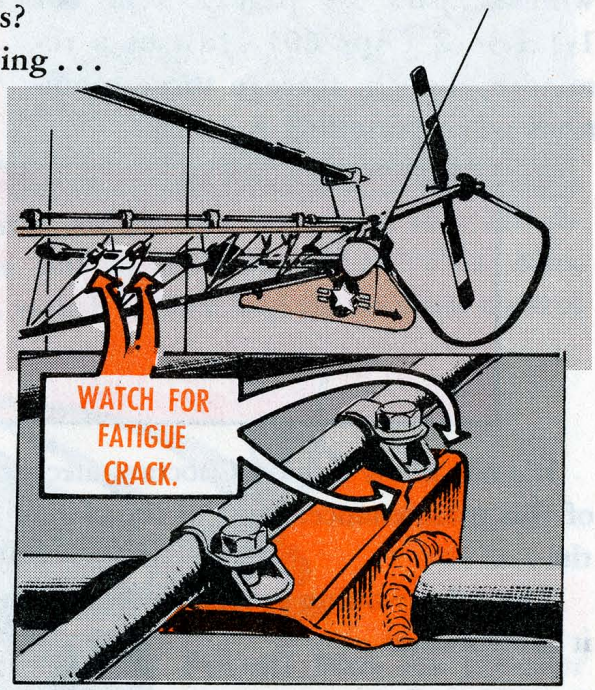
NO CRACKS, PLEASE

You say you just pulled a pre-flight on your G or H model Sioux (H-13)?

And you did it so well that if it had been filmed it would go down in training as a classic example of on-the-ballness?

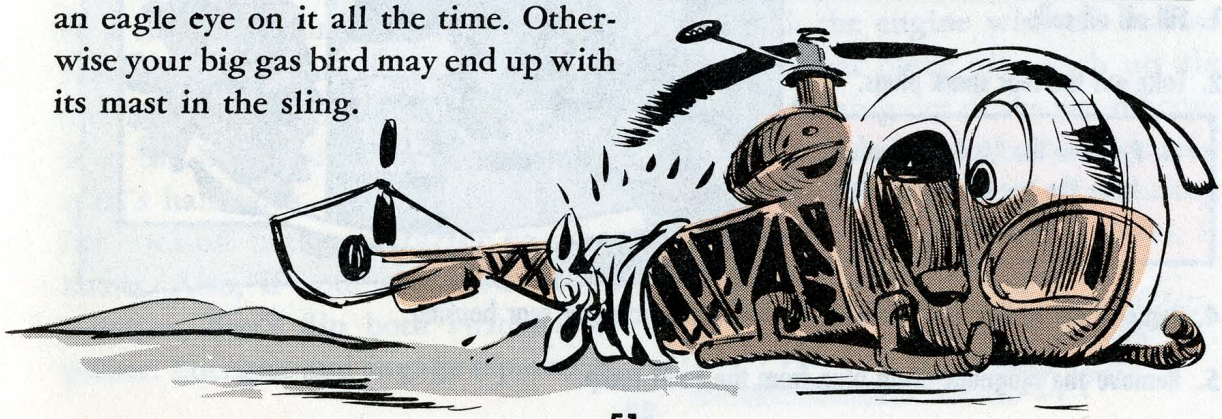
Congratulations! But, just one more thing . . .

Take another look at the mounting on the AN/ARA-31 Homing Antenna. Make it a real close look because there may be a fatigue crack that's mighty easy to miss unless you're looking for it. And while you're at it, check the welded brackets and coaxial cable entrance holes.



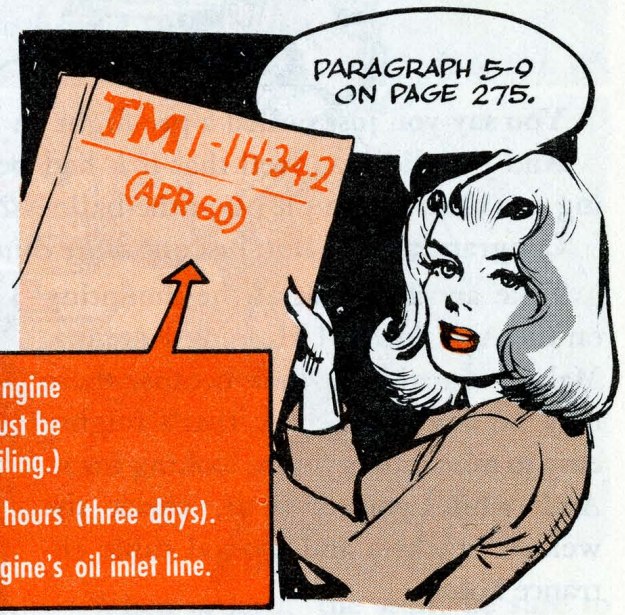
Some of these mountings have cracked from in-flight vibration . . . and you can bet your black book that some more will crack before they're all replaced.

If even the smallest hairline shows up, get the antenna replaced. And keep an eagle eye on it all the time. Otherwise your big gas bird may end up with its mast in the sling.



Army aviation types do not intentionally ruin aircraft engines by running them without oil. But some do get careless about pre-oiling. You get the same effect either way.

Take the $25,000 Choctaw R1820-84A Recip, for example. The rules on pre-oiling are printed in black and white . . . para 5-9 page 275 in TM 1-1H-34-2 (Apr 60). Just as a reminder, though, there're three conditions when pre-oiling is a must.



1. Before starting a newly installed engine after an engine change. (Runup must be done within two hours after pre-oiling.)
2. After the engine's been idle 72 hours (three days).
3. After air's been allowed into the engine's oil inlet line.

It's not likely a good Choctaw mechanic would mess up on the "when" part of this maintenance. Most of the sloppy trouble comes from not knowing all of the . . .

HOW

The —2 pre-oiling procedure seems simple enough to follow, but it pays to read it careful-like:

1. Fill **all** oil cells.
2. Take out the rear spark plugs.
3. Remove the 1/4-in pipe plug from the pre-oil fitting—left side of oil pump.

4. Remove the magnetic drain plug from the supercharger rear housing.
5. Remove the magnetic drain plug from the front sump.

PRE-OILING CAUTION . . .

NO OIL

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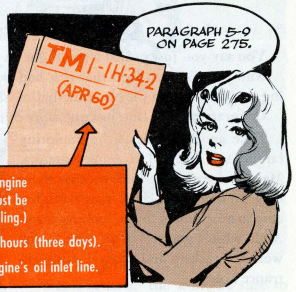

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The —2 pre-oiling procedure seems simple enough to follow, but it pays to read it careful-like:

1. Fill all oil cells.
2. Take out the rear spark plugs.
3. Remove the ¼-in pipe plug from the pre-oil fitting—left side of oil pump.

4. Remove the magnetic drain plug from the supercharger rear housing.
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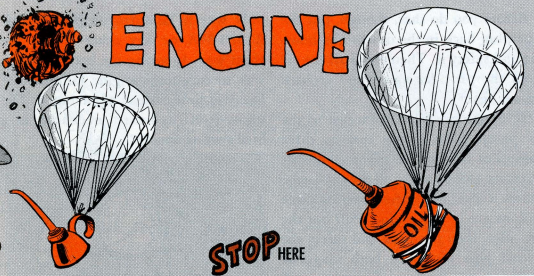
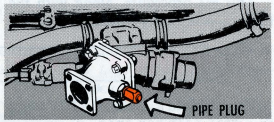
NO ENGINE



Now just hold on a minute and recheck step 3 before you go on. There's more'n one same-size pipe plug in this area. Pull the wrong one and the rest of the operation's wasted.



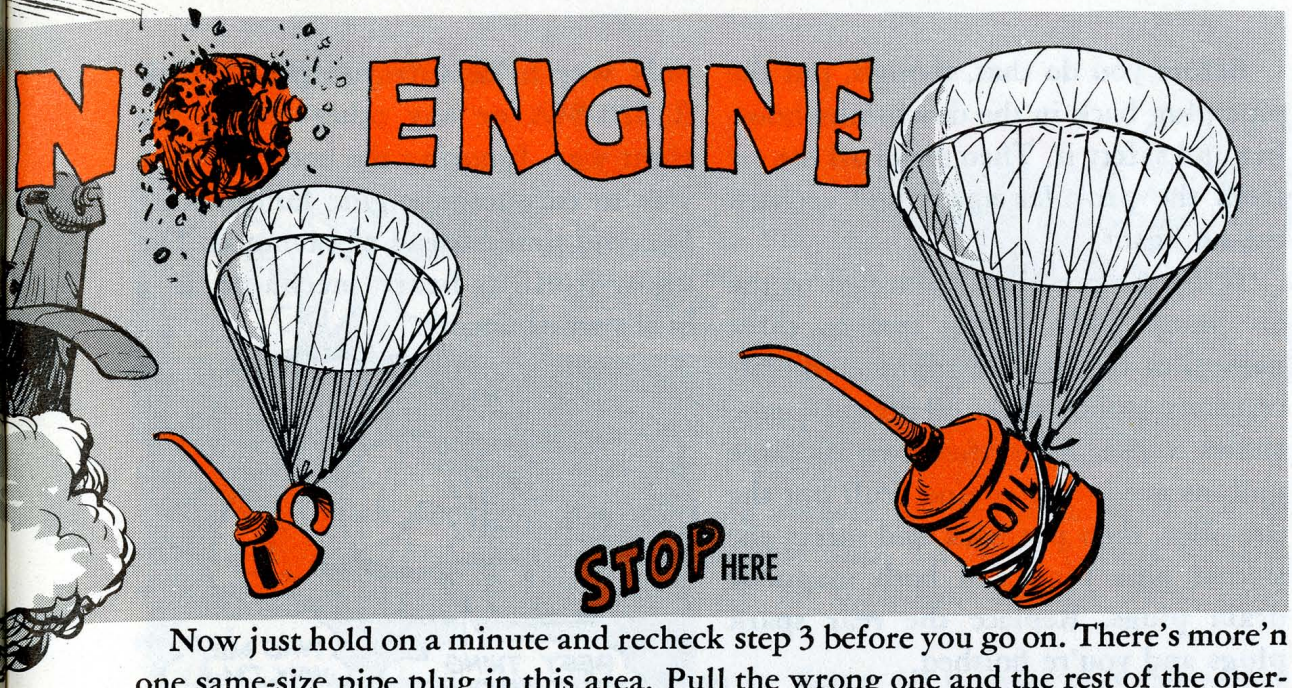
Now you take out the ¼-in pipe plug from the other pre-oil fitting—in the housing forward of the oil system drain valve. This is the fitting you start with by connecting up the pre-oiler here.

Then expel **all** the air from the pre-oiler and be sure the engine oil (MIL-L-6082, grade 1100) is heated up between 100° to 175°F (or 38° to 79°C). Also, check the cockpit to see that the ignition switch is **OFF** and the mixture control is in **IDLE-CUT OFF**.

After all this careful preparation, it'd be a shame to burn out the starter by rushing the operation. So, another reminder—crank the engine for no more than the limit spelled out in your aircraft's handbook, with plenty of time for cool-off between starter engagements. Also, if your aircraft has two switches, don't flip both switches together. Energize and engage separately.

Ready? Pre-oil! Start the pre-oiler and crank the engine with the starter until you get clear oil—with no air bubbles—coming out of the pre-oil connection on the oil pump body. Then disconnect the pre-oiler from the housing down under and get ready to stick it into the oil pump hole upstairs.

MORE...



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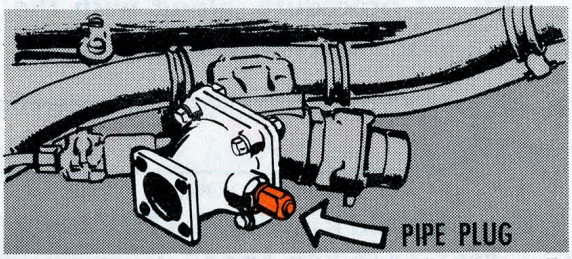

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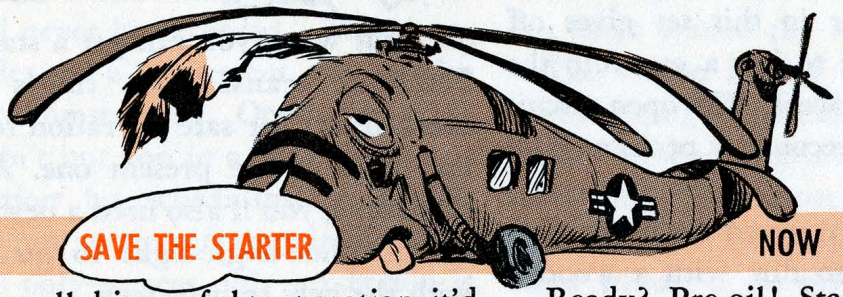

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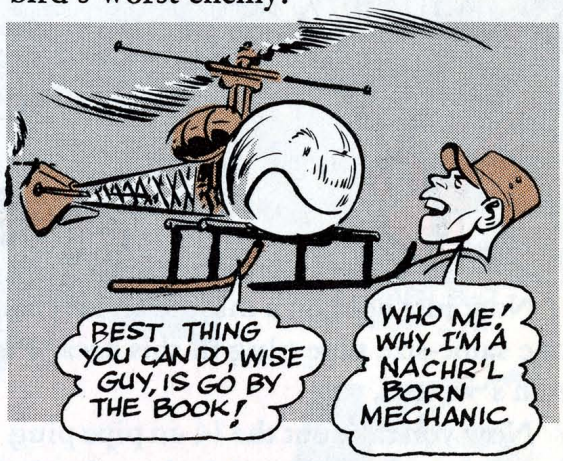
MORE...

Before you do that, though, put the pipe plug back in the downstairs housing and safety it. Then expel all the air from the pre-oiler again and recheck the oil heat.

With the pre-oiler connected to the oil pump body, pump two to three gallons of oil into the engine and start cranking as soon as the oil pressure gage shows a rise. Stop after two to three gallons are in the engine. Pull out the pre-oiler, then put back and safety the second pipe plug and both magnetic drain plugs. Replace the rear spark plugs and you're finished.

This –2 procedure, along with the few caution notes tossed in, is the **only** way to be sure you pre-oil your R1820-84A or any other engine the **right** way. Ignoring the book is a sure way to encourage engine failures that lose you time instead of saving it. The know-it-all-by-heart mechanic is a bird's worst enemy.

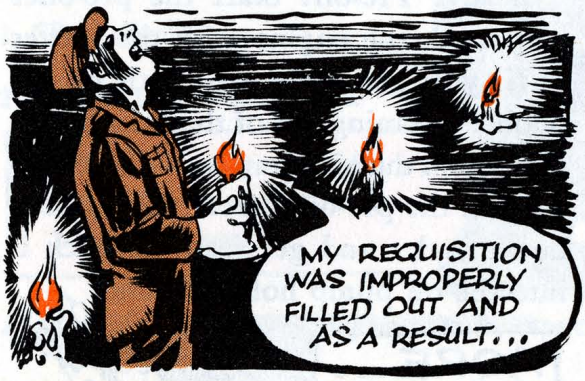


SWITCH YOUR TRANSFORMER

Your Airfield Runway 1½ KW Light Set, FSN 6210-332-3757, throws out all the light you need to keep your aircraft on the beam.

However, the 100-watt runway lighting transformer in this set gives off enough voltage to jolt a guy into the middle of next week. The open circuit voltage on the secondary peaks as high as 1400 volts.

No need for you and the other guys in your outfit to flirt with a wooden



overcoat when you can get a standard 200-watt transformer that's been checked out for safe operation to take the place of the present one. At the same time, you'll also need a new lamp in the glide-angle-light to go along with the new transformer.

Shoot your requisition for the 200-watt 6.6/6.6 amp transformer through regular general Engineer supply channels. It has been set up under FSN 5950-754-6388.

You'll have to get the newly designed lamp through local purchase under FSN 6240-688-6351, Part No. (24446), 6.6A/T10/3P.

'S OK TO EXTEND A PE—BUT...

KEEP IT UNDER A SECOND

Dear Half-Mast,

We are a little puzzled concerning the amount of time an aircraft can be flown over the scheduled periodic inspection time. TB AVN 5, page 9, says: "These inspection intervals should never be exceeded." Which seems clear enough.

But some people say the aircraft can be flown 10 percent over. Some say 10 percent over only if the aircraft is on a flight when the PE comes due. Could you please give us the word?

Also, how much leeway does the aviation or maintenance officer have to authorize periodic inspections to be pulled early or late? What specific regulation covers this?

M/Sgt C.C.D.

Dear Sergeant C.C.D.,

You've about answered the questions yourself, Sarge. Just as the TB puts it: "These inspection intervals should never be exceeded." There's no such deal as a 10 percent over—under any circumstances. Operation types shouldn't put you in a bind with your inspection by scheduling a mission that'll put an aircraft over its next PE.

The only—repeat only—exception is an order to evacuate all flyable aircraft due to an alert or hurricane. That 10 percent figure somebody found in the rule books could come from only one place—TB AVN 23-10. It allows a 10 percent extension on aircraft **components**, not PE's.

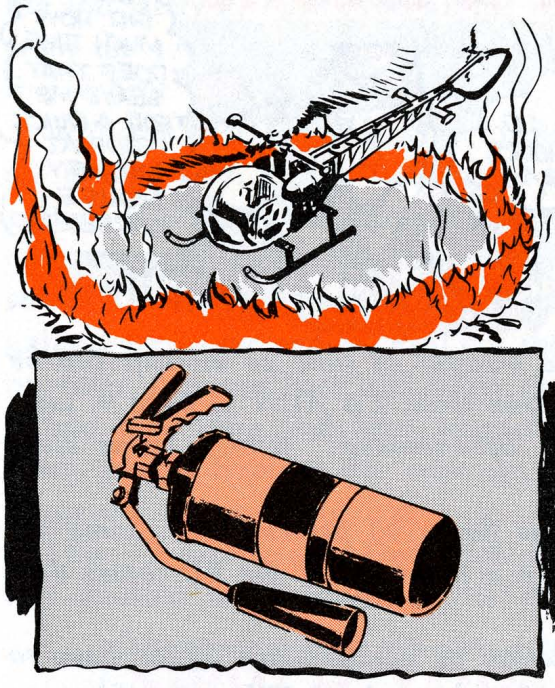
That same para 7 on page 9 of TB AVN 5 also makes it pretty clear that aviation and maintenance officers can authorize pulling periodics **early only.** It says they **can** increase the frequency but **can't** exceed the intervals, Sarge.

The reason behind this attitude is simple enough. Instead of the proverb about "give a man an inch and he'll take a mile," substitute "give a man an hour over and he'll take 10 or 20". In other words, if the inspectors let you, you'd be tempted to destroy the safety factor which the manufacturer built into his aircraft. That's why TB AVN 5 says these intervals are the maximums recommended by the manufacturer.

So a good rule of thumb is—if you think it's absolutely necessary to stretch a PE, keep it under a second!

Half-Mast

LOANED, LOST OR MOONLIGHTED



No matter how you say it—"loaned", "lost", or just plain "moonlighted"—fire extinguishers have a habit of disappearing from Army Aircraft. The result during emergencies is sad to behold.

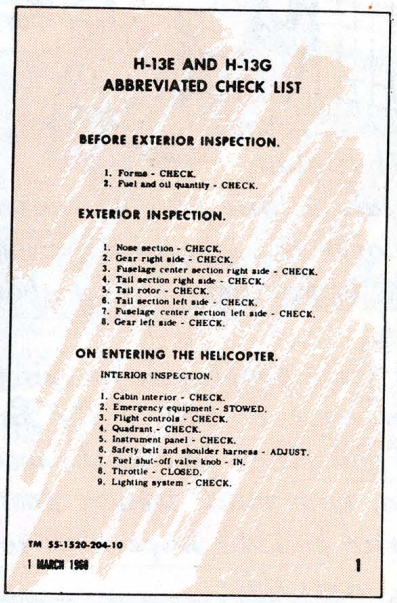
A recent case in point involved a Sioux (H-13G) which hit the ground, rolled over and started leaking gasoline. Pilot and passenger escaped without injury.

Seconds later the leaking fuel was ignited by a grass fire caused by the engine exhaust. When the pilot reached for the fire extinguisher, guess what?

It wasn't there. The Sioux just kept on sizzling.

Now everybody knows a fire guard can't possibly follow every landing during field operations. Grass fires started by choppers during normal landings, due to tall grass etc., point out the need for that extinguisher to be in its bracket at all times.

Your best bet on any "pre-flight" or "daily" is to check and see that the extinguisher is in its place.



H-13E AND H-13G
ABBREVIATED CHECK LIST

BEFORE EXTERIOR INSPECTION.

1. Forms - CHECK.
2. Fuel and oil quantity - CHECK.

EXTERIOR INSPECTION.

1. Nose section - CHECK.
2. Gear right side - CHECK.
3. Fuselage center section right side - CHECK.
4. Tail section right side - CHECK.
5. Tail rotor - CHECK.
6. Tail section left side - CHECK.
7. Fuselage center section left side - CHECK.
8. Gear left side - CHECK.

ON ENTERING THE HELICOPTER.

INTERIOR INSPECTION.

1. Cabin interior - CHECK.
2. Emergency equipment - STOWED.
3. Flight controls - CHECK.
4. Quadrant - CHECK.
5. Instrument panel - CHECK.
6. Safety belt and shoulder harness - ADJUST.
7. Fuel shut-off valve knob - IN.
8. Throttle - CLOSED.
9. Lighting system - CHECK.

TM 55-1520-204-10
1 MARCH 1960 1

You might also check for that other item of safety equipment that sometimes gets misplaced—the first aid kit.

When ordering your replacement fire extinguisher listed in the -20P manuals you may not find the latest FSN. The type A-20 is being replaced by the CF 3BR Fire Extinguisher, FSN 4210-555-8837. This is a new mono-bromo-trifluoro-methane extinguisher, issued by the Corps of Engineers and is the one you should order.

A new extinguisher costs a lot less than a new bird. Hang on to one, and it'll help you keep the other.

THE M-1937 FIELD RANGE

Napoleon (or was it Josephine?) said an army marches on its stomach. Mebbe so. Leastways, there's no morale-pooper like an M-1937 field range on the fritz Leaves the whole outfit with an empty feeling.

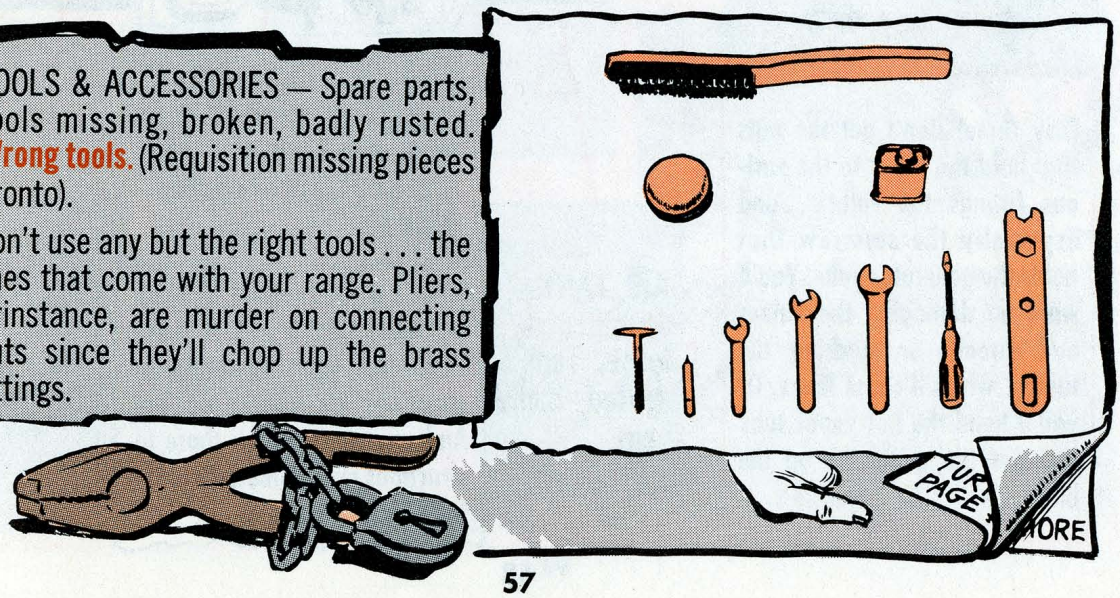
But here's a sure-fire recipe for a blissful burner and a merry mess. Check your equipment against this list. The major trouble spots—**those in bold type**—are the ones that make your range unfit or unsafe to use. Get 'em taken care of right off. The others you oughta fix yourself before they cause trouble.

You gotta get this point clear: Your inspector sees double when he eyeballs any kind of mess equipment—the health of the equipment and the health of the chowhound. Lack of cleanliness (sanitary clean, that is) and safety (leaks, sharp edges, etc.) are worth major gigs every time.

TOOLS & ACCESSORIES

TOOLS & ACCESSORIES — Spare parts, tools missing, broken, badly rusted. **Wrong tools.** (Requisition missing pieces pronto).

Don't use any but the right tools . . . the ones that come with your range. Pliers, f'rinstance, are murder on connecting nuts since they'll chop up the brass fittings.



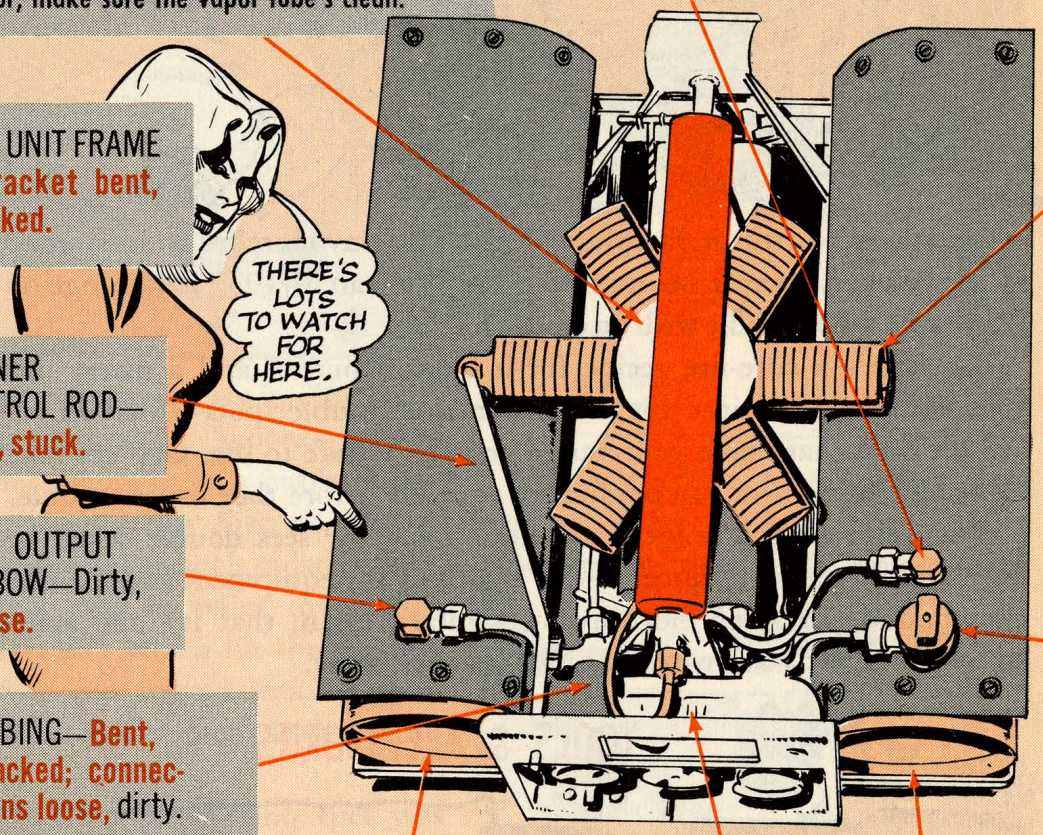
THE FI

GENERATOR—**Cracked,** dirty, **vapor tube clogged.** Yoke cracked, loose. Setscrew too tight, too loose, threadbare.

If the generator's NG, you'll find two spares down under the burner. To get at 'em, just pull the burner unit all the way out and remove the spares from the rear. But don't forget to replace the spare you use as soon as you can. FSN 7310-379-2510 will get it for you. Another thing, before you use a spare generator, make sure the vapor tube's clean.

FUEL OUTPUT VALVE **Stem and packing gland loose, set wrong.** Threads worn, **flattened.**

FIRE UNIT FRAME —**Bracket bent, cracked.**



BURNER CONTROL ROD—**Bent, stuck.**

AIR OUTPUT ELBOW—Dirty, **loose.**

TUBING—**Bent, cracked; connections loose,** dirty.

Easy there! Don't get the nuts that hold the tubes to the various fittings too tight . . . and especially the setscrew that holds the generator yoke. You'll wind up damaging the valves and threads or cracking the tubing, which'll cause leaks. Or you'll bend the hot vapor tube and put the generator on the blink.

MIRROR—Dirty, missing. (It's made of stainless steel and should be kept highly polished.)

AIR TANK—**Shield dirty,** loose. Tank dented, badly bent.

There's a good reason for keeping those shields spit 'n' polish clean. All your operating instructions are printed on 'em. And you wanta check those instructions every time before you light up that range!

FUEL TANK—Dented, dirty, loose. **Shield dirty.**

THE FIRE UNIT

GENERATOR—**Cracked,** dirty, **vapor tube clogged.** Yoke cracked, loose. Setscrew too tight, too loose, threadbare.

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FUEL OUTPUT VALVE **Stem and packing gland loose, set wrong.** Threads worn, **flattened.**

FIRE UNIT FRAME —**Bracket bent, cracked.**

THERE'S LOTS TO WATCH FOR HERE.

BURNER CONTROL ROD— **Bent, stuck.**

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FUEL TANK—Dented, dirty, loose. **Shield dirty.**

BURNER HEAD AND ARMS — **Doesn't fit right on mixing chamber. Nut loose,** worn. Support bracket nut and bolt need lube. **Burner arms clogged with carbon or dirt; badly rusted.**

Always use a wire brush and slot cleaner to do a good job.

INTAKE VALVE ASSEMBLY—**Valve stem and packing gland loose, worn, set wrong.** Threads worn, **flattened.**

FUEL TANK FILLER CAP—Loose, **cracked, plug missing.** (Never use it while the flame's going—fumes will catch fire.)

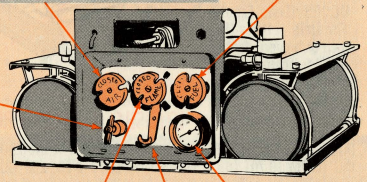
MIXING CHAMBER— **Cracked,** dented, **broken. Tube doesn't fit right in bottom cup.**

FIRE EXTINGUISHER— **Seal broken, nozzle corroded, valves closed. Wrong type.** (When replacement is needed, get a 2.75-lb **charged,** hand-type w/bracket . . . FSN 4210-555-8837-Eng.)

MIXTURE VALVE ASSEMBLY—**Valve stem and packing gland loose,** worn, **set wrong.** Threads worn, **flattened.**

One thing about the mixture valve stem and the fuel valve stem—they may look like twins, but they're **not** interchangeable. So watch it don't get 'em mixed up! For that matter, see that you always get the right knob on the right stem.

FUEL VALVE ASSEMBLY—**Loose, cracked, won't work right.** Valve stem and packing gland **loose, set wrong; fuel jet dirty, clogged;** threads worn, **flattened.**



FLAME VALVE ASSEMBLY — **Broken, cracked; valve stem and packing gland loose, set wrong; fuel jet dirty, clogged;** threads worn, **flattened.**

AIR PRESSURE GAGE—**Reads wrong,** cracked, dirty, **loose, won't work.**

AIR SHUTTER—**Loose** (should fit tight against the panel). Handle bent, **broken;** spring loose, **doesn't work.**

AIR PUMP—Fittings loose, dirty; cylinder set wrong in foot plate; hose cracked, connected wrong; clamp NG.

FIRE UNIT

BURNER HEAD AND ARMS — **Doesn't fit right on mixing chamber. Nut loose,** worn. Support bracket nut and bolt need lube. **Burner arms clogged with carbon or dirt; badly rusted.**

Always use a wire brush **and** slot cleaner to do a good job.

MIXTURE VALVE ASSEMBLY—**Valve stem and packing gland loose,** worn, **set wrong.** Threads worn, **flattened.**

One thing about the mixture valve stem and the fuel valve stem—they may look like twins, but they're **not** interchangeable. So watch it don't get 'em mixed up! For that matter, see that you always get the right knob on the right stem.

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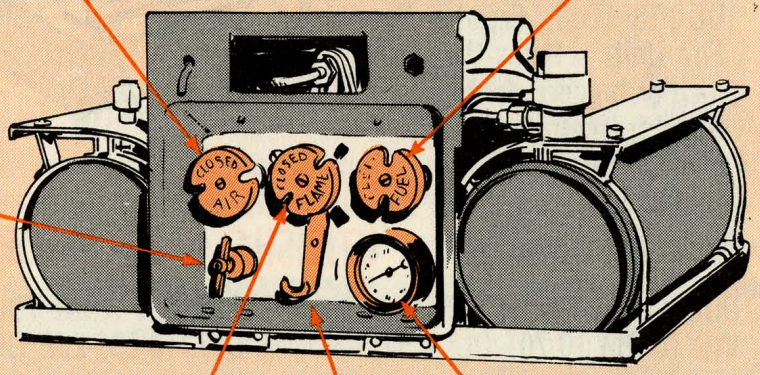

INTAKE VALVE ASSEMBLY—**Valve stem and packing gland loose, worn, set wrong.** Threads worn, **flattened.**

FUEL TANK FILLER CAP—Loose, **cracked, plug missing.** (Never use it while the flame's going—fumes will catch fire.)

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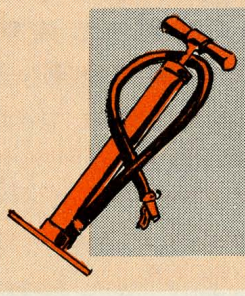


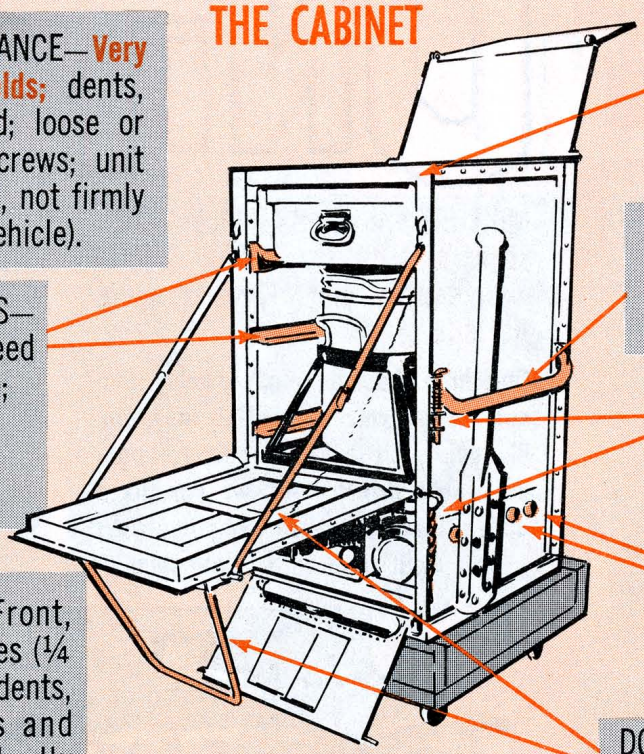
AIR PUMP—Fittings loose, dirty; cylinder set wrong in foot plate; hose cracked, connected wrong; clamp NG.

THE CABINET

GENERAL APPEARANCE—**Very dirty, broken welds;** dents, cuts, badly pitted; loose or missing rivets, screws; unit not standing level, not firmly anchored (if in vehicle).

CABINET RAILS—Loose, bent, need lube (graphite); **sharp edges, badly rusted,** worn.

DOORS (Top, Front, Fire Unit) — Holes (¼ inch or bigger); dents, bends; frames and slides bent, badly rusted; **sharp edges, very dirty.**



GRIDDLE SUPPORTS—Missing, loose, **badly rusted.**

LIFTING HANDLE—Loose, bent, **rivets missing, greasy.**

PIN LATCHES—Missing, broken, loose.

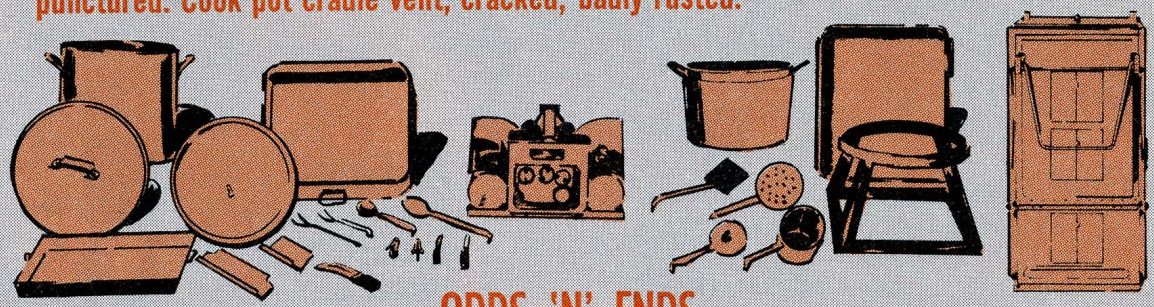
AIR VENTS—**Clogged, very rusty, won't work.**

DOOR STAY, LATCH—Bent, badly rusted.

UTENSILS & ACCESSORIES

DOUBLE CHECK THE STUFF YOU HAVE AGAINST WHAT YOU OUGHTA HAVE ACCORDING TO TM 10-701 (JULY 57) AND TM 10-7310-201-25P (JULY 60).

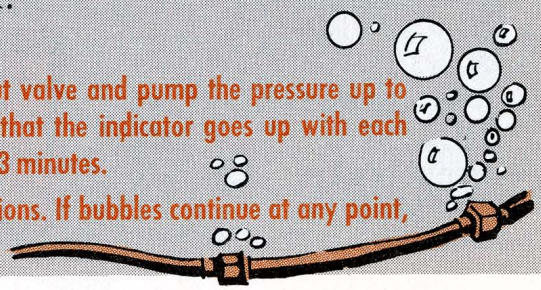
RANGE OUTFIT—Components missing, bent, broken. **Pots and pans dirty, rusted, punctured. Cook pot cradle vent, cracked, badly rusted.**



ODDS 'N' ENDS

Test for leaks. You just can't afford any leaks in your unit. Keep looking for 'em all the time. Here's a good way to check:

1. Close all the valves and the air shutter.
2. Attach the air pressure pump to the air input valve and pump the pressure up to at least 30 pounds. The gage should show that the indicator goes up with each stroke and that the pressure holds for at least 3 minutes.
3. Put soap suds around all valves and connections. If bubbles continue at any point, you'll know where the leaks are.



Lube Lore — You gotta be careful where you use what lube on these ranges. Some parts take graphite, some take general lubricating oil. Your TM'll cue you on this. (FSN 9150-252-6173 will get you a 4-oz can of oil and FSN 8030-243-3285 will get you a 1-lb can of antiseize compound, petrolatum and graphite, from Ordnance.)

And, hold on, get that salad oil outta there! First off, it's not a lubricant; second, it has salt in it that'll eat up the steel. Same goes for butter and shortening. They're bad-bad-bad for your range's digestion.

One more thing—when you shut the unit off, never turn any but the fuel valve in the upper right corner off tight: Leave the air and flame valves partly open. The reason: If you turn the air and flame valves tight while the burner's hot, those valves are gonna "freeze" up on you.

PM IN STORAGE

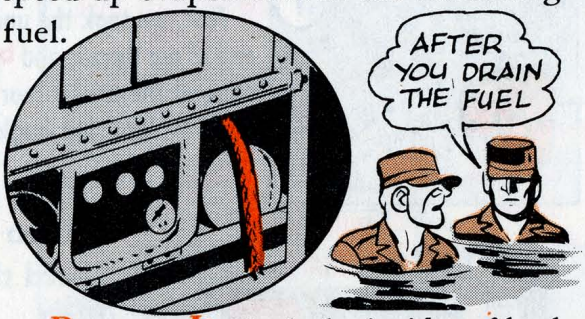
Y'know, a field range is a sometimes thing. Sometimes you use it weeks on end. Sometimes it just stands there.

But, whether you're using it or not, this baby needs care. Matter of fact, the care you give it when it's killing time in the supply room can be life or death to your M-1937.

Here're a few tips to go along with the dope on storage you'll find in Chapter 5 of TM 10-701:

Inspect It. Going in and out of storage . . . and once a week while it's in temporary storage. Eyeball every part of it, too. Especially be on the lookout for rust and moisture. (Of course, you know about storing the range outfit and the accessory outfit separately)

Clean It. Get rid of dirt, grease, oil and rust from every part and every component. After you drain the fuel from the tank, use the rope wick trick to make sure it's all gone. Take an 8-10-inch piece of cotton rope and shove one end down to the bottom of the tank, letting the other end hang out. This'll speed up evaporation of the remaining fuel.



Preserve It. Slush the insides of both the air and fuel tank with preservative oil. Coat threads and flanged connections and fittings and put a thin coating of rust preventive on all tools and unfinished surfaces. Also, use water-repellent, pressure-sensitive tape on the air gage face. And don't forget to see that the hot vapor plug on the generators are clean. Face the vapor tube downward to protect it.

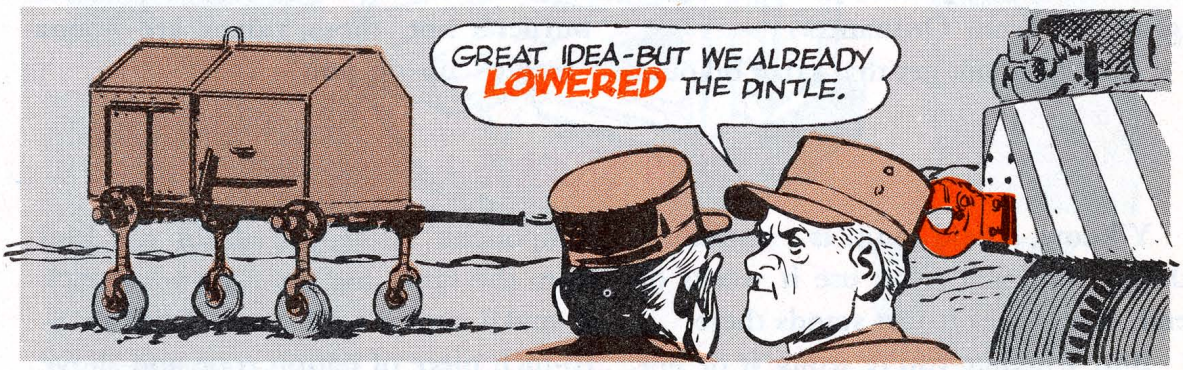
CONTRIBUTIONS

HIGHPOCKET HAULER

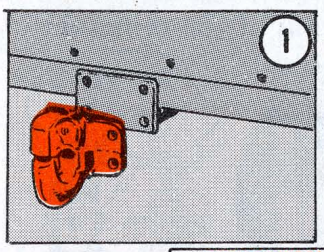
Dear Editor,

At this Nike site, we use the Federal NC 10 crane to haul our Davey RPC-15 air compressor.

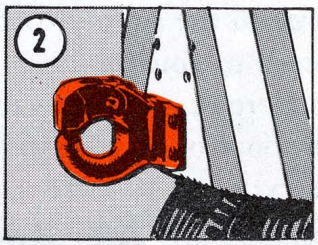
This is a hide-bound hookup, with the Davey drawbar cramped up at about a 45-degree angle to the NC 10 pintle. With this hookup, it doesn't take much of a bump to break the butt weld on the Davey trunnion—and a short turn tears up the Davey's front end.

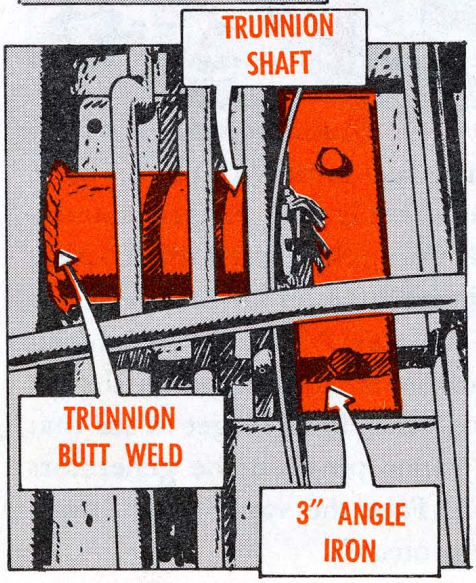


Our support mechanics gave us a hand with this problem by helping us cut down the drawbar angle, and beefing up the Davey front end.



First, we took the unused pintle off the tail end of our Davey, and **bolted** it onto the lower edge of the NC 10 rear bumper. This fix cuts down the drawbar angle and eases the strain.





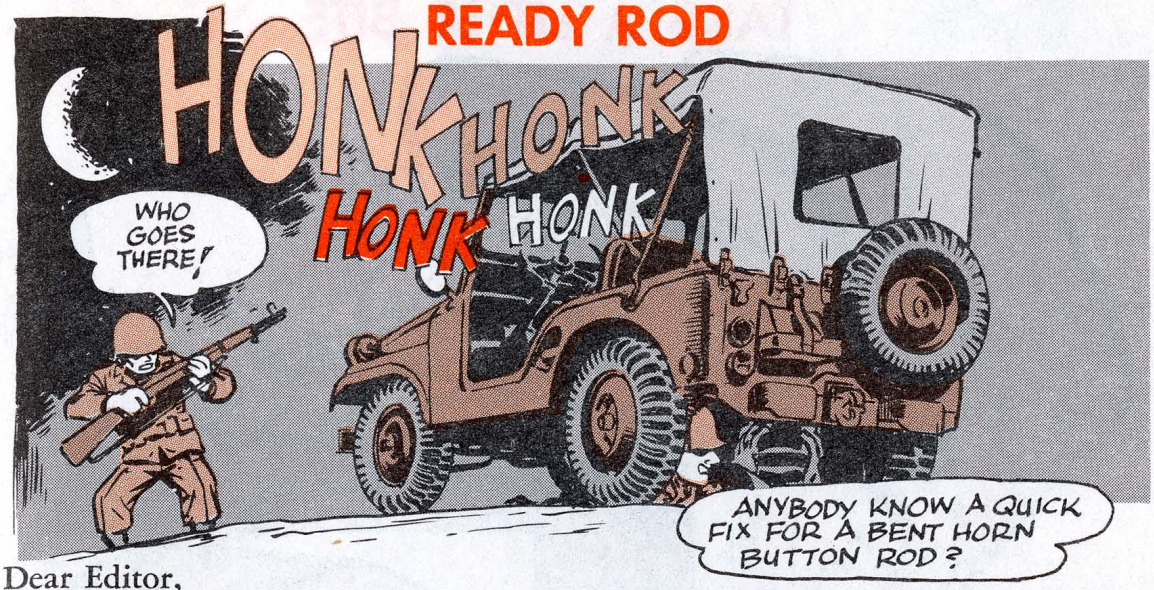
Then to beef up the Davey front end, we braced the trunnion with a section of 3-in angle iron.

The standing side of this 3-in angle iron is drilled to slip over the trunnion shaft behind the nut. The other side of the angle iron is fastened to the floor pan with a pair of ½-in bolts. This job is done when the hydrovane is pulled for maintenance.

Now, taking it slow and easy on rough ground —and no short turns—it's no sweat to haul our Davey with the NC 10.

Elwood W. Hagen
Niagara Falls, N. Y.

READY ROD



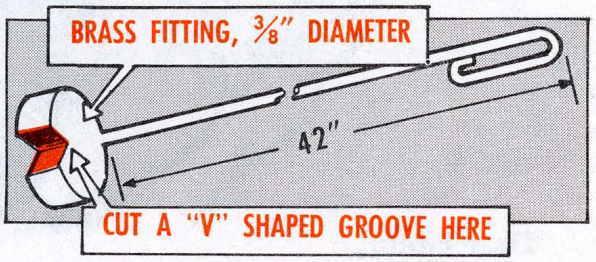
Dear Editor,

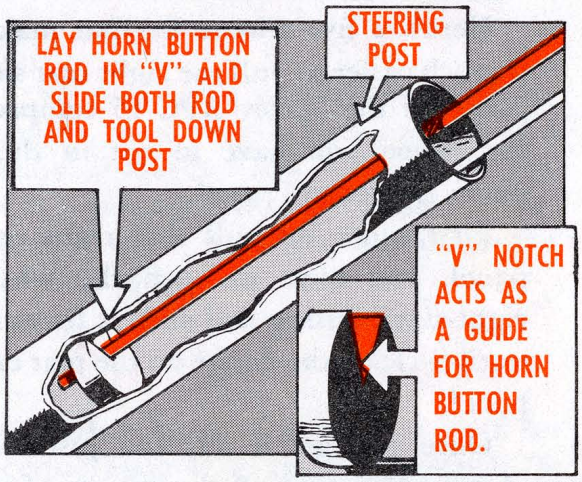
How about this as a way to speed up the job of installing the horn button rod in the M38 and M38A1 Jeeps?

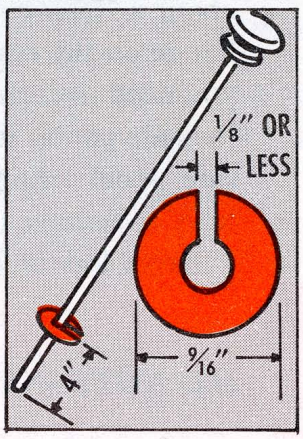
Cut a V-shaped groove in one side of an old brass fitting, ⅜-in in diameter, with a hack saw or file. Solder a 3½-ft stiff wire to the fitting on the side opposite the V. Then bend the end of the wire away from the fitting to make a handle.

Fit the horn button rod in the V, and slide both the rod and the tool inside the steering post until the rod drops into the hole at the bottom. Slip the tool out and you're all set.

Sp4 Joseph E Ware
504th MP Bn
Ft Gordon, Ga.

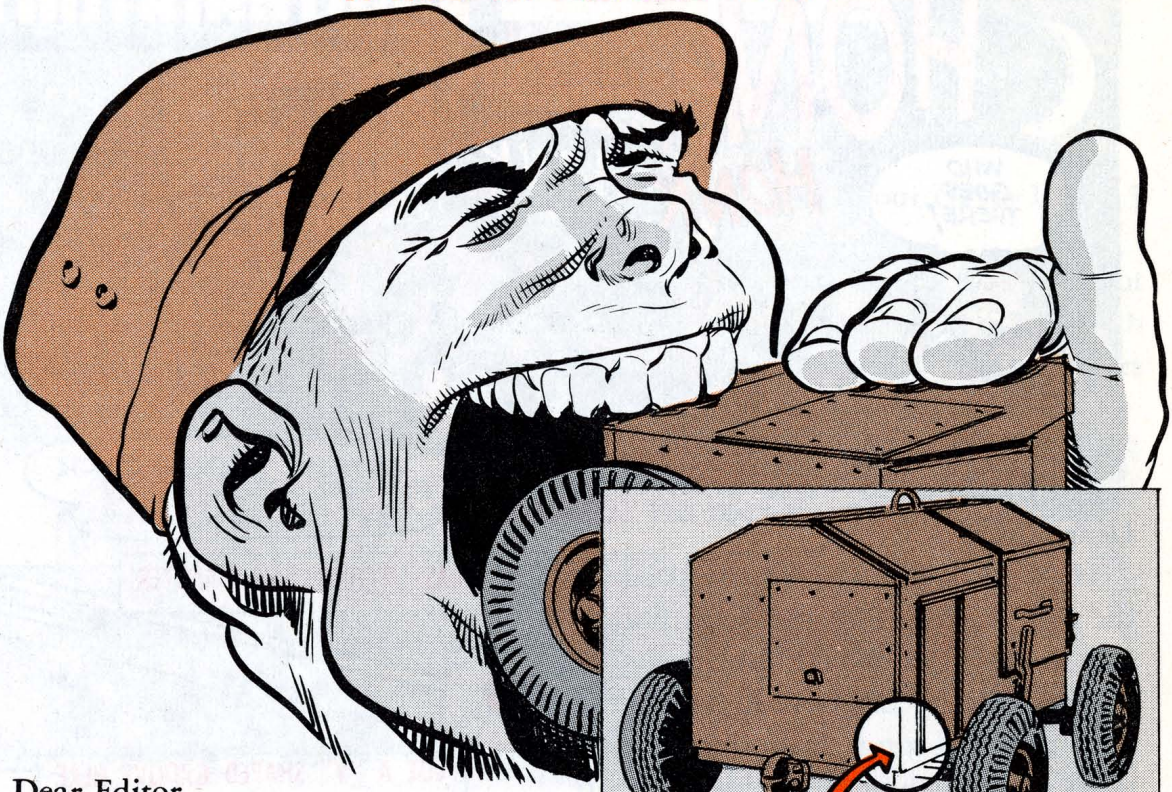






(Ed Note—That's sharp thinking for emergencies, but there's a disk now in the supply system that's just as speedy. It's Disk, steering gear centering, FSN 2530-338-1943. If you can't wait to order the disk, you can make one out of a 9/16-in disk of stiff leather or fiber. Punch a hole a bit smaller than the rod in the center of the disk. Slit the disk from the center to the outer edge, and slip it on the rod four inches from the bottom end. Then you're ready to install it, leaving the disk in place.)

TAKE A LITTLE BITE



Dear Editor,

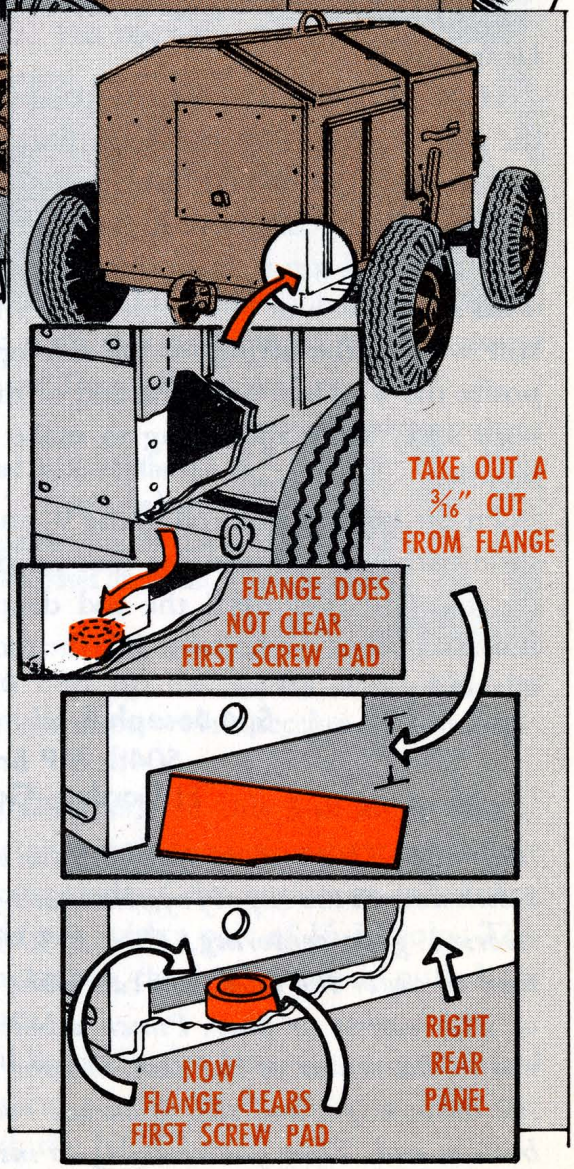
Here's a five-minute fix that makes it much easier to pull the right rear side panel on the Davey RPC-15 compressor, when you have to get in there under the control panel.

First time you pull that right rear panel, you have to open the whole right-side housing and slide it forward until it clears the flange on the rear end panel.

Once you get it off, you just take about a 3/16-in cut off the bottom of the flange on the rear end panel. That's all you need to clear the first screw pad on the side panel, so you can pull the rear side panel straight out next time you have to remove it.

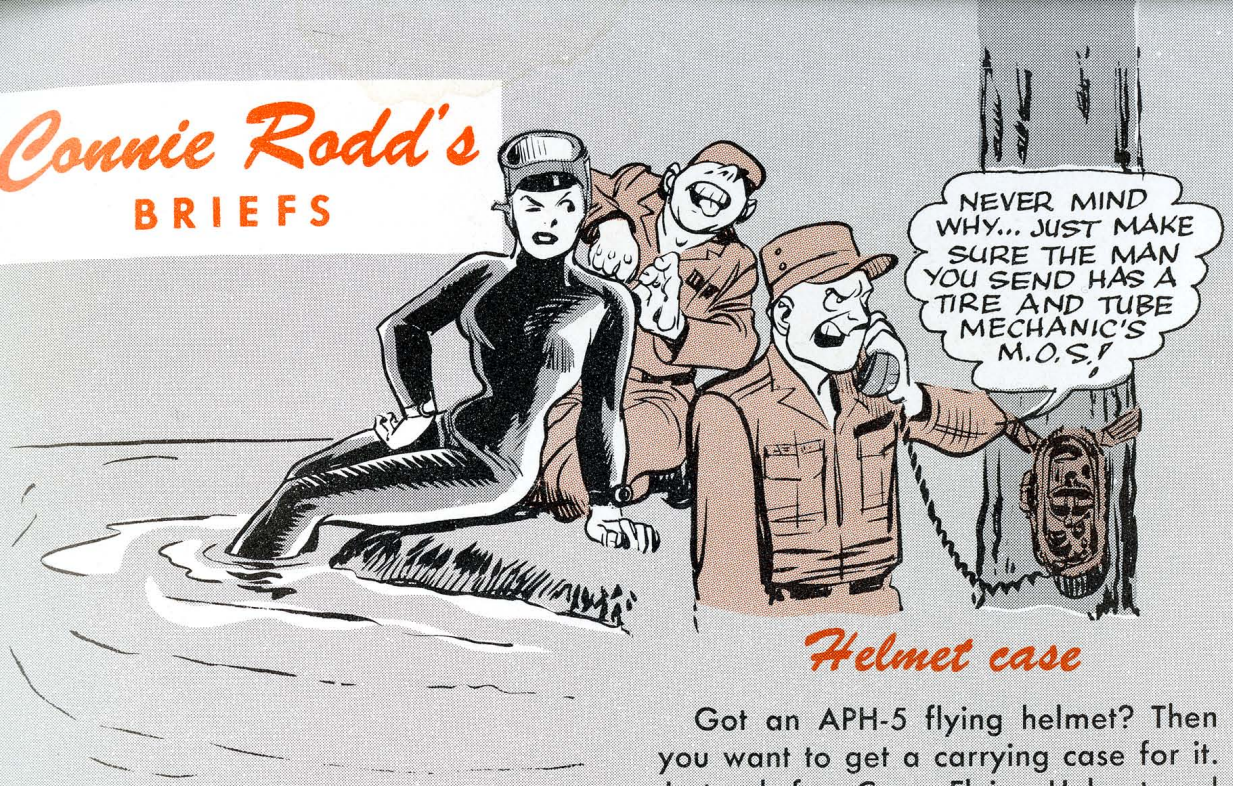
Saves lots of maintenance time.

Ben Merrill
Ft. Devens, Mass.



(ED NOTE—Nice going. It sure makes it easier to pull maintenance.)

Connie Rodd's BRIEFS



Need it?

Not getting PS? Or, not getting enough copies? Get in your request to publications support . . . they order on DA Form 12-4. Remember, PS is not issued on a distribution formula . . . only on an "as-needed" basis. Also . . . if you've got extra copies after your PS library is up to date, send the extras to Sgt. Half-Mast. Somebody else wants 'em.

Stop . . . look

If you're doing maintenance on Quartermaster equipment, you'll be interested in taking a gander at SB 10-576 (2 Sep 60) with Change 1. It gives the scoop on items being phased out of the Army supply system that don't get any more maintenance at all or are only to be maintained by organizational and field maintenance.

Helmet case

Got an APH-5 flying helmet? Then you want to get a carrying case for it. Just ask for: Case, Flying Helmet and Oxygen Mask . . . FSN 8415-753-2901 (QM). It's got a slide fastener closure, a pocket and two strap-type handles.

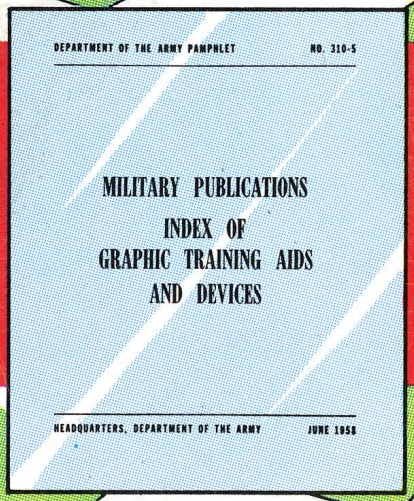
Arrest that spark!

You highballin' a diesel-electric locomotive these days? Then latch on to a copy of MWO 55-2200-201-25/1 (Feb 61). It gives you the dope on the fabrication of spark arrestors for most of the models of locomotives.

Paper maintenance

Certain kinds of paper are good for certain kinds of things. Like the moisture-proof paper your dry-pack batteries are shipped in. That paper is a natural for making temporary breath shields for AN/PRC-6's or H-33/PT Handsets, for example. But be sure your support unit replaces them with the standardized shield as soon as possible.

Would You Stake Your Life on the Condition of Your Equipment?

NEED A MAINTENANCE TRAINING AID?

See DA Pamphlet 310-5 (June 58.) It gives you a list and shows pictures of the graphic training aids you can get from your Training Aids Center.